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Original Articles.

EXPERIMENT AND EXPERIENCE WITH THE RIFLE.[1]

BY HENRY G. BEYER, M.D., U. S. NAVY.

In these uncertain and turbulent times when the peace balance of foreign relations has reached so high a degree of sensitiveness as to be disturbed and upset by a breath; when war clouds start up most unexpectedly and from the most unlooked-for quarters of the globe, and chase each other in rapid succession, the study of military surgery claims a much larger share of the attention of the medical student than ever before. Within the last two years a very considerable amount of knowledge has been harvested on the field of battle, and presented to us in the shape of some of the most excellent monographs ever written on the subject. Every student of military surgery, taking his profession seriously, and, therefore, seeking every available opportunity to inform himself and keep abreast with the times, must feel a debt of gratitude for the very instructive reports that have come to him and the profession from Senn, Nancrede, La Garde, Borden, Sir William MacCormac, Treves, Dent, and many others.

There has, perhaps, never been a time in the whole history of field operations, when any one particular weapon has wielded so powerful an influence on both friend and foe, professional soldier as well as layman, and on the military medical man, as has the present infantry rifle. The influence of the practical work of this gun in the field upon both offensive and defensive operations, upon the disciplined courage of the soldiers, upon future drills and upon the handling of the wounded, both during and after the battle, has, perhaps, not yet been fully measured and realized. Enough, however, has already been done and accomplished to bring us to a full sense of realization of the great and overwhelming importance of the present infantry rifle.

When we consider that, at the battle of Colenso, in the Anglo-Boer War, 97.5% of all the wounds were due to rifle fire, and only 2.5% to shell fire, an intimate study and acquaintance of the work done by this phenomenal piece of machinery, on the part of the surgeon, ought to need no further argument. In order that the conclusions which have been reached and formulated shall prove enduring and useful in the future, it would seem both desirable as well as necessary for us to carefully weigh and measure the evidence that has so far accumulated on both the experimental and practical side of the question. Before going into the details of either side, let us once for all keep in mind the more general as well as significant fact, also the result of recent experience in the field, that the proportion of the killed to the wounded, a proportion of 1 : 4, remains nearly the same as in former wars, although the percentage number of recoveries from among the wounded has been largely increased under the new bullet. There seems to be, moreover, little doubt on the part of the most experienced military surgeons that, after all shall have been said and sifted with regard to the humane character of the new bullet, and after due and proper allowance shall have been made for the influence of antiseptic methods of surgery, the palm of humanity will be found to belong as much to Lister, the man who originated antisepsis in 1876, as to Reger, the man who introduced the steel-jacketed bullet in 1884. With regard to this point Dr. Borden says ("Gunshot Wounds"): "I venture to say that had modern methods of asepsis and antisepsis been in use during our Civil War, the results would have been so different from those actually obtained, that it would have been seen that it was the surgical method employed, and not the particular bullet, which most influenced the result . . . It was probing with dirty probes and unclean fingers, and unnecessary operative interference under septic conditions and septic dressings, that was responsible for unfavorable results and high mortality."

With these general facts in mind, let us first turn our attention to the side of the experimenter.

A close and careful study of that most excellent monograph by Kocher, "Zur Lehre von den Schusswunden," Cassel, 1895, cannot help but result in showing that almost every injury produced by the new bullet that has been described so far as having occurred in the field has its prototype among the experimental results recorded in that work and the rest will find a most satisfactory explanation. The conscientious, unbiased and discriminating student, looking for the grand principles underlying the production of gunshot wounds, and not for the minor and non-essential details that were merely deduced, will find himself richly rewarded by a perusal of this work.

Let us, therefore, spend a short time in turning our attention to the contents of this monograph and the splendid illustrations that accompany the same. From it we learn that Kocher has experimented annually for a period of nearly twenty years, and his chief merit consists in that he has furnished the best explanation of the nature and the manner of production of what is known as *explosive effect*. From my own limited experience with experimental injuries, I may be permitted to say right here that, when once the peculiar conditions under which this explosive effect is produced are thoroughly known and correctly appreciated by the student of military surgery, the whole subject of gunshot injuries and their production under the most varied conditions, on either the living or the dead, in the field or in the laboratory, becomes unexpectedly clear.

Explosive effect in general has been attributed by different observers to a variety of causes and conditions, namely: (1) To deformed and deforming bullets; (2) to indirect or ricochet shots; (3) to the rotation of bullets; (4) the melting of the lead of the bullet.

Kocher, while willingly admitting, and, thereby, basing himself on his own experiments, that any and all the above-named conditions may co-operate in its production, sees in none of them the principal and primary cause of the explosive effect, inasmuch as he has produced the effect by undeformed, non-rotating and non-melting bullets, providing he gave these bullets the required velocity. According to Kocher, moreover, explosive effect, whether occurring in dry substances or in organs saturated with water, is due to and may be explained by the operation of the same physical law.

As early as 1880, now twenty years ago, Kocher had demanded that it should be made a matter of international law and agreement to introduce metals in

[1] Read before the Boston Society for Medical Improvement, November 26, 1900.

the manufacture of projectiles that possessed a higher melting point, greater hardness and a smaller diameter than the ordinary leaden bullets used at that time. He had already, then, convinced himself by experiment and observation that every increase in the frontage or the cross area of the attacking surface of a projectile was followed by diminished penetration and an increased explosive effect. It made no difference whether this surface was peculiar to the size of an original bullet or whether it was secondarily produced by deformity of a smaller bullet, owing to greater velocity being given to it than it could bear without becoming deformed.

Kocher, therefore, demanded that every further increase in the velocity given to any bullet should at once be compensated for by giving it a correspondingly increased hardness, because that alone could prevent the conversion of a small calibre projectile into one of large calibre by deformity on impact.

It was upon principles such as these that the early experimenters worked and succeeded in counteracting and correcting the disadvantages to mankind growing out of the higher velocities given to bullets for merely technical reasons; and so successfully did they struggle and do their unselfish work that today, it may be said, it is chiefly owing to these humane efforts on the part of experimenters that explosive effects for the human body have been practically eliminated from every part of it, except the very hardest portions of bone and those organs that contain a large percentage amount of fluids in their composition. That this is true, recent experience in war has so fully demonstrated as to produce almost the impression of disappointment upon the surgeons, not acquainted with either the views or the results of experimenters. Whence, otherwise, the seeming embarrassment on the part of some surgeons with regard to the lodgment of bullets; for instance, that low velocity bullets, no matter what their calibre, must arrive at a point where they will no longer penetrate is in perfect accordance with and not "despite all theory and experiment" (Nancrede). If none of that "appalling destructiveness" attributed to the new projectile, which experiment, made on the dead body and on animals, appeared to forecast, was seen, it was simply a matter of range or the low velocities by which the particular injuries referred to were produced.

The question as to whether the interest of the individual has overridden that of the State, by the reduction of the calibre of the bullet, or whether it has not, does not so much interest the surgeon as it does the professional soldier; it is enough for us to bear in mind that it was one of the aims of experimenters to produce a bullet that should be less destructive on the human body than the old leaden bullet. That this has been actually accomplished, recent experience has confirmed.

In order to make accurate comparisons between the effects produced by bullets of different dimensions and compositions, at varying distances from the muzzle, it became very desirable, soon after systematic experiments were begun, to have the objects of experiment near enough for accurate aiming and still strike that object with a velocity which should exactly correspond to that which the bullet would develop at any desired distance from the muzzle. The curve which a bullet describes from the time it leaves the gun to the moment when it falls to the ground is known as its trajectory. A bullet develops its greatest velocity a few feet from the muzzle of the gun. From that moment it steadily decreases until the bullet strikes the ground. The velocities which bullets develop at different distances have been ascertained for most of them and are, therefore, known. (Tables A and B).

TABLE A.

Decrease in velocity by distance. Projectiles 10 millimetres.

Velocity		at	muzzle = 435 metres.		Losses in metres.
"	25 metres from	"	= 410	"	25
"	50 " "	"	= 390	"	45
"	100 " "	"	= 352	"	83
"	150 " "	"	= 327	"	108
"	200 " "	"	= 308	"	127
"	400 " "	"	= 262	"	173
"	600 " "	"	= 232	"	203
"	800 " "	"	= 208	"	227
"	1,000 " "	"	= 187	"	248

TABLE B.

Decrease in velocity by distance. Projectiles 7.5 millimetres.

Distance.	Velocity.	Decrease.
0 metres.	600 metres.	in metres.
25 "	581 "	19
50 "	563 "	37
100 "	532 "	68
150 "	504 "	96
200 "	478 "	122
300 "	434 "	166
400 "	398 "	202
600 "	341 "	259
800 "	298 "	302
1,000 "	264 "	336
1,500 "	207 "	393
2,000 "	170 "	430

By reducing the amount of our ammunition we may give any bullet such a velocity close to the muzzle as will accurately correspond to that which a full ammunition bullet would develop at any desired distance from the muzzle. Heppner and Garfinkel were the first to make experiments with such charges of reduced ammunition and Kocher finds that the alleged differences in the injuries produced, as compared to those at real distances, are so slight and uncertain that they might easily be explained on other grounds.

Kocher's experiments are so numerous and cover such an immense ground in time, scope, skill and material; they were done under conditions so varied, that it would seem as if the field had been thoroughly and absolutely exhausted. The velocities with which he experimented varied from 25 m. to 800 m. The calibre of his bullets varied from 5.8 mm. to 16 mm. in diameter. The different projectiles varied in weight from 1.9 gr. to 23.6 gr. Both their volume and specific gravity were taken into account. The hardness of his bullets varied from steel to wax; he used rifles as well as smooth-bore guns. Lastly, the greatest variety of material was used to serve in the place of targets.

Glass plates. — Glass plates represent the brittle tissues and much useful knowledge has been derived from shooting through these with different velocities and projectiles. Kocher's plates had a thickness of 3 mm. and were 30 cm.^{2} and encased in a wooden frame being suspended from above.

Firing at such plates with a bullet moving at the rate of 25 m. per second we obtain a defect in them, consisting in an irregular hole, larger than the diameter of the bullet and, radiating from this irregular opening, we notice several long and straight fissures, reaching the periphery of the plate. Bullets with a velocity from 250 to 400 m. show that the effect produced in the plate becomes more concentrated towards the point struck. The fissures are finer, more numerous and shorter, *not* extending to the periphery of

the plate. With velocities varying from 400 to 600 m., we obtain still more intensified central defects. Instead of a large irregular opening, the defect is a small round hole approaching in diameter that of the bullets; the short and straight cracks radiating from the hole are very fine and numerous; at some distance from the central defect are seen circular, branching, intercommunicating cracks; all the cracks seem filled with powdered glass.

These effects, produced by bullets moving with different velocities, occur so regularly that the velocity share in the vi al force of a bullet is shown to be by far the most important factor in their production. A 10 mm. lead bullet and a 7.5 mm. steel bullet, moving alike with a velocity of 595 m., produce like effects. It is interesting to note that the plates themselves, when shot at with these enormous velocities, scarcely move at all.

Tin cans filled with marbles. — In solid and, more especially, the brittle class of bodies, the cohesion among the small particles to be overcome requires a greater force than is the case with fluids, but when their equilibrium has once been disturbed, it remains disturbed, while in the case of fluids the injury is quickly repaired. In order, nevertheless, to illustrate his conception of the perfect analogy existing between explosive effect in fluids by certain velocities, Kocher experimented with tin cans filled with marbles in which, as will be readily seen, the solid particles were given a greater play of mobility upon each other than they had, for instance, in a solid block of stone.

Experiments with such cans show that velocities up to 250 m. are attended by effects marked principally in the line of flight of the bullet. Both entrance and exit openings are nearly alike in shape and extent. With increasing velocities, the lateral or explosive effects are beautifully brought out by the appearance of small humps on the surface of the cans; these are, first, noted about the exit, next, on the sides and, at last, with the highest velocities, in all directions. An exactly similar process occurs in water or in organs saturated with it under the same conditions. That small particles of melted lead from soft metal bullets have nothing whatever to do with the production of this effect, nor that their rotation affects these results very materially is proven by the circumstance that hard bullets fired from smooth-bore guns produce identical effects, providing they possessed the required velocity. The gall-stone-like flattenings on the marbles show the pressure exerted by one upon the other within the can.[2]

Sandstone blocks. — These were 9.6 cm. thick and 30 cm. square. On account of the great firmness of these plates, all the shots show a quicker exh·ustion of both the penetrating and lateral or explosive force of the bullets used. Here the specific gravity of the bullet shows the value of its share in the vital energy. Lead has a more powerful effect than copper; copper a more powerful one than hollow tin filled with wood. Some of the plates are not perforated, but they show that a large, irregularly round plate of stone in the rear has been broken off. This injury being much larger than that in front of the plate, it shows the possibility of the transmission, in a funnel-shaped direction towards the exit, of the force of a bullet, without breaking the continuity of the object hit.

Iron plates. — These were 1 cm. in thickness. The experiments on iron plates serve the double purpose of showing the effects of the bullets on the plates and the reciprocal effects of the plates on the bullets under different conditions. Leaden bullets, for example, when fired into water, soap or wood, show as yet no deformity with velocities of 75 to 150 m. When sent against iron plates, at the same rate of speed, they experience considerable deformity. None of the bullets produces an impression up to 200 m. velocity. With a velocity of 435 m., a lead bullet produces an impression and leaves a whitish, star-shaped deposit, extending for several cm. around it. The bullet itself is mashed into a cake of 5 cm. in diameter, its posterior end alone having preserved its shape, being seen in the centre of the cake. An aluminium bullet, with the same velocity, produces no impression, leaving only a whitish deposit. These shots, then, would illustrate the dependence of the penetrative power of bullets upon the specific gravity of the latter, for, in spite of the velocity being the same, lead and copper will produce deep impressions, while the lighter aluminium only leaves a whitish deposit with a very shallow mark. That, however, the velocity also has a large share in the penetrating power is shown in the difference of the effects on iron plates produced by velocities of 200 m. and 435 m.

In substances like iron, therefore, in which the explosive effect does not occur, the penetrative power of a bullet is shown to be directly proportional to the two component parts of its vital energy ($m.v^2$) and inversely proportional to its volume. Anything, moreover, which diminishes the consistency of a bullet will also diminish its penetrating power.

Lead plates are 3.5 cm. thick and 30 cm. square. A 10 mm. lead bullet, sent against such a plate with a striking velocity of 435 m., gives rise to a cup-shaped depression, 3 cm. wide and 3.3 cm. deep, with a rim thrown up around the entrance, 2.5 cm. high and indented star fashion. A copper bullet of the same velocity completely penetrates the plate, entrance opening 2.2 cm. wide, exit opening 1.3 cm. wide; front rim 13. mm. rear rim 4. mm. high. A tin bullet with wooden filling of the same velocity as the preceding produces a depression 2.2 cm. wide, 2 cm. deep, with a rim 3 mm. high. The projectile is seen at the bottom of the cup-shaped depression, with the wooden filling partly forced out by a core of lead from plate entering in front. An aluminium bullet, same velocity, gives rise to a round impression, 2. cm. wide, 12 mm. deep, rim 1.5 mm. high.

Both soft and hard lead bullets, as well as steel- and copper-jacketed bullets, remain in the target with velocities of 150 m., producing, at the same time, hardly any lateral effect. With velocities of 400 m., those with steel jackets penetrate, and the rest nearly but not quite; while with velocities of 500 m., every bullet perforates the plate.

These shots on lead plates would, therefore, serve to show very clearly that the penetrative power of a bullet is primarily dependent on its velocity, next upon its specific gravity and, thirdly, upon its hardness or consistency. The same may be said of the amount of lateral or explosive effect, for it is seen that the

[2] See the Journal of the Boston Society of Medical Sciences, January, 1899.

diameter of the various openings in the plates is, in every instance, greater the greater the velocity. Notwithstanding, therefore, the undoubted influence of the calibre, the specific gravity and the consistency as well as the rotation of the bullet, its velocity dominates in the production of the characters of the resulting injury.

By the earlier experimenters it was held that lateral or explosive effect could not be produced by a non-deformable bullet with any velocity. The funnel-shaped injury produced by these bullets, now known to be the second degree of explosive action, and in which the exit is wider than the entrance, was explained by them as being due to the rotation of the bullet. It was assumed that melted particles of lead from the projectile, together with parts of the target, were thrown into a whirl by the rotating bullet, these particles acting as secondary missiles and transmitting their energy in an ever-extending circle to the parts directly in front of them, and, in this manner, giving rise to the funnel-shaped defect. This explanation, no matter how alluring it may seem, became untenable after Kocher had produced this identical defect with hard, non-melting and non-deformable bullets, fired from smooth-bore guns.

Kocher's explanation of the nature and production of the lateral or explosive effect is, that the energy of the bullet is transmitted from the parts struck, first, in the direction of the line of fire; next, with increasing velocities, in a funnel-shaped direction towards the exit, and, lastly, with still greater and the greatest velocities, in all directions.

The lead plates, especially, show this effect so well, and prove the correctness of Kocher's explanation, because the action of the bullets on them is preserved in the form of a cast. Our own experiments on glass plates, lead plates, and tin cans filled with marbles have fully confirmed Kocher's views.

Soap plates. — These were 10 cm. thick, 60 cm.,[2] and consisted of the common rosin soap. Bullets with velocities of 150 m. produced effects corresponding to the diameter of the projectiles used; with velocities of 300 m., funnel-shaped canals, 1 cm. in diameter, were produced; with velocities of 435 m., the canals became 2 cm. wide; with 600 m., the openings show a width of 4 cm., and deformable bullets with 600 m. velocity give openings of 9 cm. in diameter.

In these plates, therefore, the gradual increase in lateral effect with increasing velocities is well shown. Up to velocities of 250 m., soft lead bullets remain as yet undeformed; with velocities of 435 m., they lose one-half their length. Hard lead bullets lose one-fourth their length with 435 m. and with 595 m. of velocity, the very posterior end alone remains in shape.

The plates show, among other things, that the resistance offered by the target, no matter what may be its composition, increases as does the velocity of the bullet. When compared with the lead plates, the soap blocks show more delicate shades of difference as regards both the effects of different velocities as well as of the varying specific gravity of the projectiles used.

Tin vessels filled with water or substances saturated with it. — Bullets fired into tin cans that are filled with dry cotton, dry meat or sawdust give, with all velocities, entrances corresponding in shape and diameter to those of the bullet and exits about twice that size. When these substances are wet or the meat is fresh and succulent, then the exits become from four to five times larger than the entrances. With the highest velocities, the cans are torn open and fissured around the entrances.

With velocities from 410 m. or upwards all the vessels filled with water are rent apart and this hydraulic or hydrodynamic effect is made apparent whether these vessels are open or closed at the top. It is, therefore, not necessary, for the production of hydraulic effect, that the water be enclosed within rigid and unyielding walls. It is simply and most strikingly evident that the effect is due principally to the suddenness of the entrance of the bullet which leaves the water no time for making its escape in any direction, not even that of least resistance, but which tends to force it in all directions, like an explosion. It would seem as if the explosive energy of the ammunition that sent the bullet into the centre of the can had been translated into the can and suddenly transmitted to the water contained in it. Round bullets, fired from smooth-bore guns, produce identical effects with the same velocities as do rifle bullets.

Experiments with a water box. — In order to still further illustrate the hydraulic action of bullets in some organs of the human body, Kocher experimented with a water box. As regards hydraulic action, Busch was the first to suggest the idea that some of the effects produced by projectiles in some tissues or organs of the human body might possibly be explained on principles of hydraulic pressure. After him, Küster, Heppner and Garfinkel confirmed this idea and Kocher raised this hydraulic pressure theory to the dignity and importance of a law, true for all tissues of the body containing fluids. Later on, Reger, Bruns and Kikuzi did much to confirm and extend the experiments of the earlier authors.

Kocher had a box made, 345 cm. long, 56 cm. broad, 61 cm. high, open at the top and filled with water to a height from the bottom of 55 cm. Through the side of one end a hole was cut and this was covered in by leather of the kind used in making drum-heads. This was kept in position by an iron frame fitting the opening, and through it the bullets were fired into the water in the box with varying velocities.

Three important results were brought out from these experiments, namely: (1) The dependence of the penetrating power of any bullet upon its velocity; (2) upon its specific gravity; (3) upon its form and deformability. I will here only cite a few examples: A copper bullet, 410 m. velocity, 34 cm. beneath the surface, advanced 256 cm.; a soft lead bullet, 410 m. velocity, 32 cm. beneath the surface, advanced 110 cm.; a hard lead-bullet, 410 m. velocity, 33 cm. beneath the surface, advanced 285 cm.; a soft lead bullet, 250 m. velocity, 29 cm. beneath the surface, advanced 230 cm. under water.

It will be seen, therefore, with leaden bullets, that the amount of penetration is not directly proportional to the velocity, as is the case with hard and non-deformable bullets. Lead occupies an exceptional position in that it shows greater penetration with lower than it does with higher velocities.

When, moreover, leaden bullets are given velocities above 250 m., they will undergo deformity; a lead bullet, 25 mm. long, when sent into the water box with a velocity of 250 m. remains undeformed, while a velocity of 410 m. will cause it to become

shortened to 14 mm. Knowing that the penetrating power of a projectile is inversely proportional to its cross-sectional area, it is almost certainly proven that the lessened penetration, noted above, is entirely due to the deformity which lead bullets undergo when striking the water in the box. That the deformity in this case is due to mechanical force and that, for instance, melting has nothing whatever to do with it, is proven by the facts (1) that mechanical force can produce the same degree of deformity, and (2) that metals with a much lower melting point than lead when fired into water with the same velocity remain solid.

A passing lead bullet evidently creates its own resistance in the water. The higher the velocity, the greater this resistance. From the moment the resistance reaches a point so as to cause deformity, which is at about the velocity of 250 m., explosive effect also becomes apparent. From that time on this effect is increased with the velocities used and at last it results in the bursting of the box and in the water spurting up to the height of 10 feet.

Based upon the results of these experiments and those on tin vessels filled with water, the conclusion seems unavoidable, namely: That the destructive effects of our modern high velocity bullets upon organs containing a large percentage amount of fluid are produced by hydraulic pressure.

That velocity has a preponderating influence upon the production of these effects was also shown by Salzmann (Kocher), who made use of bullets rolled out of filter paper in which "m," therefore, was as much as possible, eliminated. With such bullets Salzmann obtained explosive effects in skulls and, with the highest velocities, he was able to cause their complete destruction. The epiphyses of oxen at close range were completely exploded and, at 21 cm. from the muzzle, perforated. "Expansile effect" (Treves) does not seem a good substitute for the old time-honored name of "explosion."

Both Salzmann and Kocher agree in that the existence of an enclosing capsule is not a necessary condition for the production of explosive effect from hydraulic pressure and, while admitting that deformed and deformable bullets will increase the degree of the effect, the primary and principal cause of it is the velocity of a bullet. The principal reason why it has seemed so difficult at first to attribute to different causes the explosive effects in dry and wet substances is because the effects are not so much in evidence in fluids as they are in solids. The parts of a liquid after a moment come together again, while bone splinters, for instance, will remain splinters.

Measurement of explosive effect. — Nothing, certainly, could be better calculated to show the nature of explosive effect than the experiments of actual measurements by Kocher. Before, therefore, proceeding to study the effects of bullets on human tissues and organs, let us see what we can learn from the experiments made to measure the power of this all-important explosive effect. Two methods have been employed to this end. The one consists in direct manometrical measurement and the other in ascertaining the loss in velocity experienced by a bullet while penetrating its aim.

Table C (Kocher) shows loss of velocity in metres per second by a projectile after passing a 10 cm. layer of water enclosed within a pig's bladder.

TABLE C.

Projectile.	Calibre.	Original velocity.	Loss.
Hard lead	7.5 mm.	599 m.	190 m.
Copper jacket	7.5 "	595 "	57 "
Lorenz steel jacket	7.5 "	578 "	23 "
Hard lead	7.5 "	425 "	33 "
Copper jacket	7.5 "	425 "	30 "
Lorenz steel jacket	7.5 "	425 "	7 "
Hard lead	10.0 "	425 "	74 "
Soft lead	10.0 "	428 "	117 "
Copper	10.0 "	425 "	14 "
Copper	round	425 "	64 "

The above table shows the enormous difference in the loss of velocity experienced by a large-calibre or a deformable small-calibre bullet, as compared to a small or non-deformable large-calibre bullet. It also shows the relatively greater loss of velocity with the higher than with the lower velocities for all bullets.

Table D (Kocher) shows the loss in velocity of a 10 mm. hard lead bullet after passing through the extremities of a human cadaver. Striking velocity = 420 m.

TABLE D.

Parts.	Loss in metres.
1. Upper arm	79
2. " "	60
3. Forearm	58
4. "	93
5. Thigh	139
6. Leg	183
7. Thigh muscles	124
8. " bone	175
9. Leg bones	123

The above experiments show that projectiles of different composition, and of which it has long since been known that they possessed different degrees of penetrative power, also experience different losses in velocity during their passage through certain aims. Generally speaking, this loss in velocity is inversely proportional to the hardness of the material of which the bullets are made and directly proportional to their calibre.

The Lorenz projectile, with its non-deformable steel jacket, loses the least amount in velocity, the Rubin projectile with its strong copper jacket comes next, and the hard lead projectile next, the soft lead last. By far the greater part of this loss in velocity is converted into lateral or explosive effect, because the loss in the total power of the bullet in becoming deformed is but a few kilogrammetres, amounting, as it does, in the case of a 10 mm. Vetterli to only 6 or 7 kgm.

With a velocity of 410 m. a 10 mm. Vetterli strikes its aim with a force equal to 181.6 kgm. While penetrating the muscles of the thigh, it loses 92.6 kgm. or very nearly one-half of its original power, by a reduction of its velocity from 410 to 300 m. In passing through the bones of the lower extremity, it loses 113 kgm., which greatly exceeds the amount of mechanical force necessary to cause its deformity, and which is only 10 kgm. It demonstrates the fact that the largest share of the original power of the bullet was converted into lateral or explosive effect, in this instance, at least twice as much as was necessary to cause its deformity and penetration together. From the fact that a bullet loses more of its force in passing through the lower than it does in passing through the upper extremity, we must, very naturally, expect the former to result in a more serious injury than the latter.

A knowledge of the losses in velocity of certain bullets through the different parts of the human body would enable the surgeon in the field to estimate the range of lodged bullets, providing the bullets did not

happen to be badly deformed. We know, for example, that a 7.5 mm. bullet, with an initial velocity of 600 m., has a remaining velocity of 170 m. at 2,000 yards' distance from the muzzle. Supposing that it should, at that distance, enter the outer side of one thigh and go only through the fleshy part, thus losing 124 m. of this remaining 170 m.; supposing, further, that it now enters the other thigh in a direction towards the bone, with the remaining 46 m. of velocity, it would be bound to lodge in the femur of the second thigh. Such calculations would, in my opinion, come much nearer the actual range at which the fire was delivered than the best guess.

The second method of determining the amount of lateral effect consists in direct manometrical measurement. Reger was the first to employ this method, but Kocher, by devising a very ingenious piece of apparatus, obtained thereby much more accurate and reliable results than Reger. This is schematically represented in Fig. 1.

Legend. — Shows the lower part of a tin vessel filled with water. Into the bottom is fitted the cylindrical projection of the iron stand, within which slides a cylindrical piece of steel resting on a lead bullet. This may be fitted to the sides, top or bottom. When a shot is fired through the vessel the power exerted upon the water will cause the projectile to become shorter by direct compression. The mechanical power necessary to do this may be easily ascertained and expressed in kilogrammetres. By means of this piece of apparatus, Kocher was able to calculate the amount of lateral pressure caused by a 10 mm. Vetterli, 25 mm. long, entering a tin can filled with water and which amounted to a little over 23 kgm. per square centimetre of surface. By means of the same instrument, it was, moreover, clearly shown that hard lead bullets gave considerably less pressure than soft ones; more pressure was also produced when the projectile passed nearer to the measuring instrument than farther away from it, but regardless of whether the vessel itself was open or closed (see next table). While, therefore, the pressure may rise to a higher degree, when the water is enclosed within resisting walls, the effect itself occurs without such walls.

TABLE E (Kocher).

Bullets.	Calibre.	Velocity.	Atmospheric pressure per cm.²	
			Sides.	Bottom.
1. Soft lead	10 mm.	435 m.	37.5	37
2. Hard lead	7.5 "	595 "	42.5	41.5
3. Copper jacket	7.5 "	595 "	20	22
4. Lorenz steel jacket	7.5 "	595 "	21.5	24

Some experiments also were made with a hollow iron shot, into which holes were bored for the entrances and exits of bullets. These holes were closed with bladder skin and the shot filled with water, of which it held 1½ litres. The result of shooting through it, under these conditions, was the bursting of the shell into fragments. Experiments with skulls, with the same apparatus attached, gave a lateral pressure of 10 atmospheres.

The analogy in the effects of bullets produced on tin cans containing water on the one hand, and on tin cans filled with marbles on the other hand, is that in both the water and the marbles are suddenly dispersed in all directions by the passing bullet when the latter has the required velocity. As the velocities increase from the lowest to the highest, we first notice only an effect in the direction of the shot, next by a funnel-shaped exit, and, at last, the effect shows itself in all directions, as is evidenced by the bursting of the can of water and the impressions of the marbles on the surface.

The very highest degree of this effect, and which presupposes the existence of rigid walls, is hydraulic pressure. But to this condition neither the skull, with its content of brain, nor the cylindrical bones, with their marrow, exactly correspond. The hydrodynamic effect noted to occur in these is not the same in degree but only in kind.

Finally, since it is well known that water offers less resistance than does, for instance, the cortical substance of bone, we must expect that explosive effect in the latter will continue to occur with lower velocities and longer ranges than it does in water-containing tissues or organs. The effect itself, however, once produced, will reach a higher degree in water and water-containing tissues than it does in bones.

Human tissues and organs. — For the purpose of a better appreciation of the characters of gunshot injuries in the human body, we will do well to study such injuries on the different tissues separately. To this end, we may, with Kocher, divide them into three categories or classes: (1) The brittle; (2) those that contain fluids, and (3) the elastic tissues.

The brittle tissues. — The cortical substance of bone is the only tissue in the human body belonging to this class, and the more this preponderates over the other in any part, the more lateral effect in all its forms may be expected to occur in that part. The reduction in the calibre of bullets and the hard metallic jacket have resulted in reducing the size of skin wounds and limited the occurrence of hydraulic effect in the soft parts to shots at close range. The injuries to bones, on the other hand, continue to be serious. Special attention has been called by von Coler and Schjerning to the small skin wounds that are found over very serious bone injuries, particularly the long cylindrical bones. To one acquainted with experimental literature, it ought, therefore, give no surprise to find small skin wounds in the field even behind perforated bone. Nor would he allow himself to be misled by these small skin wounds as regards the possible existence of more serious injury to the bones underneath. That this has, however, actually occurred, we are led to infer from what Dent says with regard to these small wounds. He says: "A feature of small-bore wounds was the large amount of callus afterwards thrown out and, therefore, a neighboring joint might become fixed." The fissures existing in the bone underneath a small wound of exit are not so much in evidence in the field nor can they be brought out as clearly as a dissection on a cadaver can bring them to light in a laboratory. While, therefore, a surgeon not personally acquainted with experiments might be surprised at this abundance of callus which is thrown out, one who has such an acquaintance would, on the contrary, be led to look and prepare for such occurrences.

A careful comparison of the results obtained by experiment have, moreover, brought very prominently into notice slight differences in hardness, elasticity and percentage amount of moisture between different bones as well as different parts of the same bone. Hence, also, it has become clear that injuries produced under apparently identical conditions may still differ somewhat in character. Thus, for instance, the relative

proportions of hard, bony substance to the volume of the cavities within have been studied and calculated by Habart and Friedrich (Kocher). In the femur of a young man the proportions of solid substance to volume were found to be 1 : 1.26; in the tibia, 1 : 1.6. In the femur of an old man the proportions were 1 : 2.11 and in the tibia 1 : 2.45. In a humerus, 32 cm. long, Habart found the marrow cavity 21 cm. long and 13 mm. at its greatest breadth. The closed spongy ends measured 7 cm. above and 4 cm. below. The thickness of the cortical layer in the middle was 5 mm.; 4 cm. above the lower end it was 3 mm. thick, and where it passes over into the articular cartilage it was only 1 mm. thick. The cortical layer of bone is, as a rule, slightly thicker in front than behind.

In view of the existence of these differences and the effect which these will exert on the production of injuries, it seems at once but reasonable to demand that they shall be taken into account whenever bone injuries either in the living or the dead are compared. Observing these points, Kocher, for instance, was unable to detect any differences between the injuries produced at long distances and such as were produced with reduced ammunition but by the same velocity at close range.

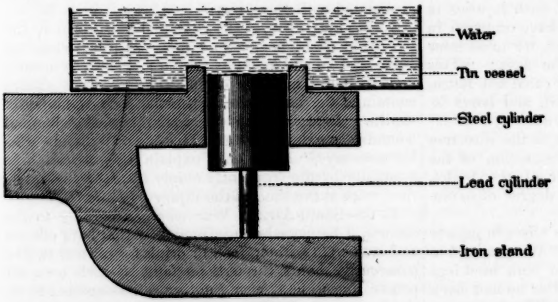

Fig. 1.

It is a well established fact that the lateral effect becomes greater the greater the resistance which a bullet has to overcome. As a solid body, therefore, bone must show signs of lateral effect with lower velocities, in other words, at greater distances than other tissues do. This same effect must, moreover, be greater the nearer we get to the middle of the diaphyses of cylindrical bones and to certain borders that are especially strengthened by extra layers of compact bone, such as we find about the linea aspera of the femur.

In view of the varying composition of different parts of the same bone, it is, moreover, easily understood how opinions could differ as widely as they did with regard to bone injuries in general. Since now, however, a distinction has been drawn between injuries to diaphyses, metaphyses and epiphyses, these differences of opinion have become reconciled.

The type of a gunshot fracture is today, as it was formerly, a fracture with splinters. Transversal and parallel longitudinal fractures are the result of bullets of low velocity in which the parts are simply pressed apart or bent and the walls pushed in. When, therefore, Mr. Treves says: "With regard to the alleged obliquity of fractures I should say deliberately that the great majority of fractures in this war due to Mauser bullets have been transverse,"[3] he gives the best possible and most unavoidable proof that the majority of fractures that came under his observation were produced at long range. The general rule is that the greater the distance or the lower the rate of velocity of a bullet producing a bone injury, the longer and the less numerous will be the splinters of the resulting fracture and the more likely it is that the splinters will remain in position and adherent to the periosteum; the bone may be perforated and yet show only long fissures running parallel to its long axis, as experiments have shown. The closer the range the smaller and the more numerous will the splinters be and the more perfect their separation from the periosteum as well as from each other. Fractures in which the splinters are small, fine and numerous and in which the exit is a large cavity filled with bone sand, driven into the neighboring and pulped muscles, may be produced experimentally at 100 m. distance. That Mr. Treves[4] has seen some fractures that were produced at close range, we must infer when he says: "I have seen a fracture of the humerus in which the bone was broken into twenty-three small fragments,"[5] and, also, when he gives an account of a case in which the bullet had entered the epiphysis of the humerus and blown off its head, he says: "On examination, hardly any fragments of bone were found at all, they had been practically pulverized." This is a very lucid description of an explosive injury as it occurs in an epiphysis.

But even in such extensive bone injuries, it is not at all uncommon to find both entrance and exit exceedingly small. In an experimental injury of this kind on a knee joint, I found both exit and entrance wounds small, not exceeding the diameter of the bullet, but dissection revealed complete comminution of the articular end of the tibia, the capsule of the joint filled to distention with bone sand. The copper jacket of the bullet was discovered in the centre of the mass of detritus, the lead core, afterwards found on the floor, had alone escaped through the skin, causing a very small skin wound.

Between these two extremes we find the typical fracture first described by Bornhaupt and called by him a butterfly-fracture, occurring in long bones about the diaphysis. In this fracture, two triangular pieces of bone seem broken out on either side of the point of perforation. The apices of the triangles are at this point, while the hypothenuses are at the periphery of the bone. Behind is found a longitudinal fissure dividing the two fragments into two lateral halves. The evidence seems conclusive that the tubular character has everything to do with the production of this very characteristic fracture with certain velocities, because Bornhaupt has produced similar fractures in cylindrical glass tubes.

[3] British Medical Journal, May 19, 1900.
[4] Loc. cit.
[5] Loc. cit., January 27, 1900.

Mr. Treves,[6] speaking of bone injuries, says, "The following four statements are not borne out by experience in the present war. The first is that the severity of the injury to bone decreases as the range increases; the second is that explosive effects are produced when a bone is hit at short range, such as 500 yards or under; the third is that fractures are nearly always oblique, and the fourth is that when a bone is fractured, the exit wound is always larger than when this does not occur."

From what has already been said with regard to injuries to diaphyses and from what we will hear presently with regard to injuries to epiphyses, the above cited four textbook statements do not perhaps go far enough to convey the full impression of their meaning, but as far as they do go, they nevertheless appear to be not so far from being correct as Mr. Treves would have us believe.

Tissues containing fluids. (*a*) *Muscle.* — In muscular substance, explosive effect has reached its minimum degree of intensity. Bruns obtained clean perforative injuries at distances of 120 m. The canal was not larger than the diameter of the bullet and its adjoining walls were practically uninjured. Von Coler and Schjerning also obtained such injuries in near shots. That such injuries also have occurred in the field and at much larger distances, we must infer from what Sir William MacCormac says: "This slender, elongated bullet produces a canal not much, if anything, larger than a goose quill, and bores its way through, as if the hole had been done by a drill." Nevertheless, a defect in the muscles, in the direction of the bullet, attended by a total destruction of the parts to the extent of the diameter of the bullet, marks, according to Kocher, the first degree of explosive action.

At a distance of 30 m. explosive effect in muscle becomes very much more apparent. We obtained in a young ox an injury which involved both hind legs at that distance, about two minutes after he had been killed by a shot through the brain. The bullet entered the fleshy part of the left leg, midway between ankle and knee, and passed out through the right leg of the opposite side about the same point. The first entrance and the second exit wounds were not much larger than the calibre of the bullet, while the first exit and the second entrance wounds were of the size of a silver dollar. The wounds might be represented by two funnels, their wide ends turned towards each other, on the inside of the legs.

Shots through muscle, at greater distances than the above, result in canals that are smaller even than the calibre of the bullets, but the above example shows that hydrostatic pressure may be produced, even in muscle, by a simple increase in the velocity. It begins to show itself by a funnel-shaped exit and ends by a pulping of the tissue adjoining the track of the bullet. Mr. H. Temple Mursell,[7] civil surgeon attached to the British forces in South Africa, with regard to this point, says: "It has been frequently stated that the damage to the tissues inflicted by a small hard cased bullet, such as the Mauser, is comparatively small and, within certain limits, the statement appears to be correct. . . . In those instances in which it has been necessary from any cause to follow up the track of such a bullet wound, the death of the tissue around the track has been found to be much in excess of what might be anticipated. The resulting cylindrical cicatrix is of considerable extent and often produces more crippling than would be expected, owing to the muscles and their sheaths becoming firmly bound down." Such statements, based upon experience in the field and confirmatory of the experiments in the laboratory, might be multiplied. They would tend to make us slow and careful before pronouncing an opinion as to the benignity of an injury, because of the presence of small entrance and exit wounds. We must wait for more remote consequences. Many of those wounded in the war in Cuba, and whose wounds were considered trivial at the time, have since been invalided from the service.

It has, moreover, been observed by Reger that, while in one muscle we obtain as yet clean perforations, in another, containing slightly more fluid, we already obtain a beginning explosive action, the velocity being the same in both cases. Muscles of different animals as well as different muscles from the same animal behave differently in this respect, and hence also the clash between the opinions of the earlier experimenters and of those in the field not thoroughly acquainted with these facts.

In the heart, liver, intestines and the bladder, the hydraulic effect begins to appear with velocities of about 250 m. and amounts to more or less, in accordance with the quantity of fluids which these tissues contain at the time, as experiments have abundantly shown. As regards the benign character of abdominal wounds occurring in South Africa, Sir William MacCormac says, "I can only explain this considerable immunity by the frequently empty state of the intestinal tract at the time of the injury" (*Lancet*).

In the South-African War where, according to the reports, it happened not infrequently that both officers and men went without food or drink for ten and twelve consecutive hours through no fault of their own, all penetrating wounds would naturally be expected to be smaller, except those in the cortical portions of bone. This state of things was therefore not an unqualified evil, but rather a "blessing in disguise."

(*b*) *Spongy bone.* — In the diaphyses we have found an almost complete absence of hydraulic effect, which, in epiphyses and metaphyses, becomes the prominent feature. Hydraulic action commences to show itself in spongy portions of bone with velocities of 300 m. The spongy substance is ground up into sand, the cortical layer is splintered and these splinters are driven in all directions under the highest velocities. Hence, also, the difference in the injuries between hard cortical and spongy epiphyseal bone and the necessity for a separate classification. It will, therefore, not do in the future to speak simply of bone injuries in *military* surgery, without specifying the parts of the bone in which these injuries were produced.

Busch (Kocher) has shown that the amount of destruction experienced by any part of a bone depends primarily upon the amount of resistance which it opposes to a bullet. This resistance is less in spongy than in hard bones. When, therefore, von Coler and Schjerning noted the occurrence of rather serious bone injuries at unusually great distances, while Reger and Bruns found them so slight as to call them benign and the bullets that produced them humane, the former experimenters referred to hard bone and the latter to injuries as they occurred in spongy bone.

[6] British Medical Journal, January 27, 1900.
[7] Lancet, January 23, 1900.

(*c*) *Metaphyses.* — According to Kocher, it was first proposed in 1871 that the portion of bone lying midway between the epiphysis and the diaphysis of a long cylindrical bone should receive a separate name and its injuries treated under a separate head. The term "intermediary" bone was applied to it by German surgeons. Kocher proposed the name of "metaphysis," which seems to have been accepted. In this portion of bone, the cortical layers begin to become thinner than they are in the diaphyseal portion, while the spongy substance, at the same time, shows an increase. Hydraulic effect prevailing in the epiphyses, fractures with splinters about the diaphyses, injuries to metaphyses, must share the characters of either. Injuries to metaphyses are, as a rule, more serious than those of epiphyses and less so than those of diaphyses.

(*d*) *Flat bones.* — In flat bones, simple perforations seem to be the rule. Injuries to flat bones are serious only in direct proportion to the importance of the organs which they protect. The highest velocity shots upon skulls, filled with brain, show that they are attended by a high degree of explosive or hydraulic action. Any one having once fired a full velocity bullet at such a skull and seen the fragments of the skull fly apart, the brain scattered to the winds, will probably not again speak of "expansile effects," but will call the event a plain explosion. Empty skulls will give clean perforations and low velocities, irregular openings.

The elastic tissues. — Whenever we shoot into elastic material, such, for instance, as is represented by a soft, flexible rubber plate 3 cm. thick, we obtain a very uniform series of defects; mere conical perforations with the highest velocities and straight and very narrow canals with the lowest. The parts are shoved aside with such ease that a projectile of even the highest velocity at present attainable does not push the parts hit directly in front of it, but only shoves them aside temporarily. These uniform injuries cease to occur from the moment we substitute an inferior quality of rubber, so much so that the quality of rubber may be tested by a shot.

This circumstance has a practical bearing, for it is well known that by no means all the so-called elastic tissues of the body contain the same amount of elastic material, and in accordance with this difference, their injuries must differ just as do those of elastic rubber plates of different quality. Some elastic tissues, moreover, like the skin and the blood vessels, part much more easily in one direction than in another. Hence, we often get either transverse or longitudinal rents or fissures instead of clean perforations. In skin wounds on fresh cadavers, for instance, the elasticity of the skin becomes apparent only at the exit, because about the entrance it is backed by a less resilient tissue. Sometimes, also, but only with the lowest velocities, we obtain slit-like entrances which occur more often with the exits. With slightly higher velocities the entrance wounds become round. When, however, an elastic tissue is distended so as to neutralize its elastic nature in certain directions, we get perforative effects with loss of substance. This also occurs in situations where elastic tissue is adherent to non-elastic membranes.

Under such conditions the defect produced by a bullet in the skin, for instance, or the fascia, is of the form of that of the tissue directly underneath it: A round hole when over muscle; a longitudinal slit when over bone. When the injury has occurred in the neighborhood of tissues liable to show explosive effect, the skin partakes of the character of the injury done to those tissues. It is in this manner that we get the fissures and rents, shaped like an H or like a star, also the long tears in serous membranes and those covering the liver.

Nerves as well as blood vessels show sometimes a miraculous escape from injury even with the new bullet, but only with the lowest velocity; with the higher velocities, they are simply perforated and portions of their coats scooped out; the ordinary injury, however, is a transverse or longitudinal rent similar to that found in the skin.

Shots through lung tissue, especially when in a distended state, show a complete absence of lateral effect even with the very highest velocities, providing the bullet entered undeformed.

Experience in war. — We have seen from the preceding experimental evidence that the human body, from the point of view of the military surgeon, must be considered as a compound body, made up of a variety of tissues, each of which reacts differently upon a passing bullet. It is for these all-sufficient reasons that the original division of the trajectory of a bullet, with reference to the injuries to the human body, into three zones has been given up by experimenters years ago. Recent experience, also, would indicate that the injuries occurring in the field either are severe enough to cause immediate death, or promise a fair chance of recovery on account of their being rather light. Injuries in general, consequently, would naturally fall into two great groups, the severe and the light, and since the former occur at close range and the latter at long range, we now would more correctly speak of near-shots and far-shots (*Nahschüsse* and *Fernschüsse*).

Indeed, when we read carefully the descriptions given by military surgeons of the injuries which came under their treatment and observation in recent campaigns, we can hardly escape the conclusion that by far the greatest number of them were light. La Garde ("Remarks upon Gunshot Wounds") says that he only saw one case in Cuba that approached anything like explosive effects. This great scarcity of the severer class of injuries can only be due to the fact that engagements occurred at distances that made their occurrence impossible, while those that actually did occur were so severe that the men remained where they dropped and were buried out of sight long before the surgeons had time to notice them.

In any attempt, therefore, at discussing the injuries produced under the more exact conditions of experiment with those that occurred in the field, a comparison between the ranges would be of the first and greatest importance. It is here, also, that we meet with our first great difficulty, for it is easily seen, while the range in a shooting-gallery or laboratory can be measured with absolute accuracy, that in the field, in the majority of cases, must remain practically unknown. There is no guess, however good, no range-finder, whatever its construction, that can approach an actual measurement of distance, or of the velocity of a bullet.

As regards South Africa, for instance, Mr. Charles A. Court, in the *Nineteenth Century* for November, 1900, page 712, says: "Until all ranks became ac-

customed to the clearness of the atmosphere, ranges were frequently underestimated by one-half the real distance. . . . The Boers, excellent shots, would open fire at 2,000 yards' range from every scrap of cover that could shelter a man."

Mr. Dent says with regard to range: "Unfortunately reliable information can very seldom be obtained on this point," and Mr. Treves [8] remarks: "The damage done by the Mauser depends mainly on the range." Although an additional four months' experience caused Mr. Treves to change his mind with regard to the influence of range, he has no doubt since then had sufficient leisure to repent and to revert to his former and more correct conclusion.

At any rate, those of us who have seen shots at close range, either due to accident or suicidal intent, and long distance injuries in the field must be pardoned for looking upon the range as having the most important bearing on the character of the wounds produced by bullets. This is indeed so much the case that, even in the absence of more accurate information of field ranges, the trained military surgeon may be trusted to read the range in the character of the wound before him, with at least the same accuracy as any rangefinder can. We may, then, even without an exact knowledge of the field ranges at which bullet wounds are produced, conclude with perfect safety and all scientific reserve that practical experience has fully confirmed the results of experiments in respect to the influence of range. All other conclusions contrary to this would seem to have been arrived at without a knowledge or personal acquaintance with experimental injuries, so necessary for a correct interpretation of the meaning of gunshot injuries on the field.

Our own conclusions would, therefore, exactly coincide with those of La Garde, who says: "From the foregoing I believe we should conclude that the work of the experimenters agrees with the conditions found in war, and that their work was not done in vain."

CLINICAL NOTES AND COMMENTS: DEGENERATIVE DISEASE OF THE SPINAL CORD ASSOCIATED WITH ANEMIA.

BY ROBERT T. EDES, M.D., BOSTON.

THE connection between certain fairly definite spinal symptoms, not usually recognized as belonging to the well-marked system diseases on the one hand, and conditions of malnutrition of the blood on the other, is of much interest both to the neurologist and to the general practitioner.

At first, the cases showing this connection were spoken of as spinal degeneration, dependent upon pernicious anemia, and as the "pernicious" is usually the most severe and persistent form of anemia, the association is certainly a very frequent one. But, on the other hand, since many cases of pernicious anemia progress to a fatal termination without spinal symptoms, and since fairly characteristic symptoms of this spinal type occur in cases which do not exhibit blood appearances diagnostic of the specific form, the association is evidently not necessary even though it be frequent.

The present tendency is to put the anemia more or less into the background, and to speak rather of a toxemia which may be a common cause of both conditions. This toxemia, like many others equally important, is largely hypothetical, and perhaps there is more than one kind, but its existence is rendered very probable by the sequence of the condition spoken of upon quite a number of infectious diseases. These are, according to Dana, influenza, acute infectious diseases, diarrhea and dysentery, possibly shock, lead and malaria, and some others less common and less certain. Strangely enough, syphilis, that arch enemy of the nervous system, is not among them as enumerated by our countryman, but a very elaborate article, by Risien-Russell, Batten and Collier,[1] seems to make up the deficiency, for of their 7 cases 4 had a definite history of syphilis, and in only 2 could it be excluded with comparative certainty. Congenital predisposition does not seem to play an important part, or at any rate it is not easy to demonstrate in persons in or beyond middle life. Dana makes the suggestion, which is highly important, not only from the point of view of etiology but of prognosis and therapeutics, that possibly some of the obscure paralyses of children which recover, as most adults do not, are in reality cases of this kind.

Which set of symptoms has existed first in any given case cannot always be known, inasmuch as both begin gradually, and neither is likely to be looked for before its presence is distinctly announced. It is more likely to be the nervous ones which first attract attention, as the paresthesiæ or the pareses force themselves upon the attention of the patient, while he may not be aware of increasing pallor, or it is referred by himself or his friends to an indefinite condition of health below par.

The early sensory symptoms are numbness in the extremities, inability to use the hands for fine work, and a sense of extreme coldness of the feet, which latter, however, may have a double cause in an actual deficiency of circulation as well as interference with paths of sensation in the cord.

The motor symptoms are of general weakness of motion and co-ordination rather than of distinct paralysis of any group of muscles or special movements. The deep reflexes are at first apt to be exaggerated. Later, everything has progressed and we may have a more or less extensive anesthesia, absolute paralysis, and absence of deep reflexes. The following cases illustrate several of these points:

CASE I. A professional man, aged about forty, who had worked hard and had had diphtheria, after which he lost smell and taste, but had no paralysis. His wife thinks she noticed that he was becoming pale before the onset of the paralytic symptoms. He began to lose control of his legs and fell several times, but kept about on crutches for some months. No severe pain. When first seen by me his appearance would at once have suggested anemia, probably pernicious, at the first glance, as he was fat, extremely pale, with a sort of puffy look that suggested but was not edema. He could draw up his legs and raise his toes. There was distinct loss of tactile sensibility throughout the legs, which on the inside of the thighs and the perineum became almost complete anesthesia. The sense of position was lost. There was no distinct girdle sensation, but pain and soreness about the sacrovertebral junction. He said, when he was sitting up he felt as if the body rested on the pelvis by a ball and socket joint. He could distinguish

[8] British Medical Journal, January 27, 1900.

[1] Brain, Spring, 1900.

heat and cold on his feet and the outer aspect of the legs and thighs. The knee jerks were absent, and were said to have been so for some time. The plantar reflex was normal. The wrist and elbow jerks were normal or perhaps slightly increased. He had not lost control of the rectum or bladder. The respiratory, circulatory and digestive organs were normal. He had a very good appetite; took and digested a very good amount of food.

An error was made in the estimate of blood color, but it was not far from 25%; red corpuscles, 1,760,000. The whites were not increased in proportion to the reds, and they were divided in about the usual proportions, except that the eosiniphiles were a little above the average but not distinctly above the normal. There were no nucleated reds, but the variation in their size and shape was extreme. The patient died about three months after these notes were made, after a few days of rapid failure with a rise of temperature. There was no autopsy, but there can be no doubt of the extensive and extreme degeneration of the lower portion of the cord.

Case II. A man, aged seventy-six, tall and rather pale, had bronchitis (grippe?) in September, since when he had not been well or walked well. In December he had a feeling of numbness in his hands and of numbness and coldness in his feet. His back felt numb. He walked awkwardly and feebly without crutches, but better with them. There was no diminution of sensation anywhere nor any hyperesthesia; heat and cold were well distinguished. The knee jerks were normal or slightly increased, but there was no ankle clonus. The heart and pulse were weak, and he had frequent attacks of syncope. No blood counts were made, but a cover-glass preparation showed nothing characteristic of pernicious anemia. He died in February.

Case III. A man, aged seventy-one, of active habits, had not been well for two years, except during a visit to California the previous winter. He was seen on January 13, 1887. Last September he noticed shortness of breath on exertion, and his feet and legs felt cold. Six weeks before my first visit, on going out into the street, he felt a sudden weakness of the legs and was obliged to return, which he did with much difficulty, being hardly able to get up the doorsteps. When I saw him he was in bed, though he stood up for part of the examination. He complained chiefly of coldness and stiffness of the legs, as well as of weakness, but of no pain. A sense of constriction across the lower part of the bowels was constantly present, and seemed to have little or nothing to do with any condition of constipation or otherwise, nor with any abdominal tumor, although this latter possibility was seriously considered. With the history of the sudden attack and the peculiar sensations and weakness of the legs, attention was at once directed toward spinal disease. The legs could be moved freely in any direction as he lay in bed. The muscles were flabby and small, but not decidedly atrophied, and reacted well to the faradic current. Sensation was everywhere present, and both superficial and deep reflexes were of nearly normal intensity. He could stand with his eyes shut. Examination of the urine, rectum and of the fundus of the eye gave no further information. The blood count was, at first, 1,575,000, and there was very marked poikilocytosis. This was before the days of staining and of differential count, so that my diagnosis of "pernicious" anemia, although it was agreed to, on the basis of a cover-glass preparation, by one of the first authorities in the world, would probably not now be considered justified.

The blood count increased to 2,540,000, coinciding with a considerable gain in flesh and strength, although it was found after some months that the patellar reflex had disappeared without any other symptom of increasing paralysis. In the extremely hot weather of July he contracted an enteritis of which he died.

Case IV. Mrs. M., a patient of Dr. Tanner, of Dorchester, age about fifty-five. A year and a half ago she had "bilious fever," with vomiting, chill and jaundice. During the interval up to the present time she has had at times symptoms similar to those of which she now complains. Day before yesterday she had another chill. She has had numbness of the hands and feet, and now has distress as if her feet were in cold water. She can walk but little, but can make any movement freely. Sensation perfect. Knee jerks normal or perhaps slightly increased. Ankle clonus on the left side. No increased elbow reflexes. No nystagmus, no tremor of the intention kind or otherwise. Her sight was not good, but the precise nature of the trouble was not determined. There was a large white spot in each retina, and on the right side the disk was possibly too white. These appearances were probably due to an old retinitis. The blood was unfortunately not counted or its color per-

centage determined, but a cover-glass preparation was made and examined. This showed no marked departure in quality from the normal which would indicate the presence of any special form of anemia.

The patient made no essential improvement. She had jaundice for some time before her death, which came by way of heart failure, about six weeks after the notes were made.

Autopsy. — The body was quite fat, although it was said that the patient had lost much flesh. The liver was large and the gall bladder distended with bile. It contained a few small black stones, one of which was in the cystic duct. This was undoubtedly the cause of the jaundice present some time before death, and possibly of the previous attack. The kidneys were large and palish, of structure apparently normal to the naked eye. The spleen was large, soft and pulpy. The uterus contained several fibroids. The heart was large, flabby, and with a large amount of fat upon its surface. In places its structure was pale and friable. Under the microscope some of the fibres in the right ventricle and in the septum were nearly destitute of striæ, and showed some fatty granules. There was little or none of this condition in the left ventricle. There was no atheroma of any of the arteries. The muscles in the popliteal space were light colored and friable, and under the microscope showed some fibres with few or no striations and some fine granules (fatty degeneration). The brain was apparently normal to the naked eye, and was not examined further, except the medulla oblongata in its lower

portion. Portions of the spinal cord, the lumbar region and a small piece of the extreme upper cervical just below the oblongata were normal to the naked eye.

Sections made after hardening showed the appearances usually found in this form of disease as indicated by the cribriform condition of the connective tissue or neuroglia, showing large and irregular meshes where the degenerated and swollen nerve fibres have fallen out, and presenting a very marked contrast to the regions still normal, with much finer and uniform meshing. Everywhere, however, there are found considerable numbers of fibres apparently normal. The areas of this degeneration were found in the lower (third and fourth) lumbar region only in the posterior columns, but at the level of the first lumbar nerves there were in addition very distinct patches in the posterolateral columns and in each anterior horn beside the median fissure. In none of these cases except in the anterior horns did the lesion come quite to the surface of cord; and in the posterior columns there was a narrow strip of tissue, at least comparatively normal, along the inner border of the posterior horns. In the upper cervical region where the decussation of the pyramids is not quite complete corresponding areas may be found, but of course more widely separated. In the medulla at the level of the olivaries there are still evident remains of degenerated patches toward the outer posterior border, but so ill defined that it is difficult to localize them more accurately.

It has been remarked of these cases that there is a tendency to formation of focal lesions, that is, that the degeneration does not follow continuously any of the so-called systems of fibres. The gap (a long one) in this specimen makes it impossible to say that such may not be the case here also, but so far as it goes, the degeneration seems to follow very closely the conducting paths of voluntary motion and sensation, and thus corresponds precisely to the symptoms.

As to the gray matter it would not be possible to say, in the absence of the more delicate methods of preparation, which should be applied to very fresh specimens, that the cells were absolutely healthy, but the larger groups in the lumbar region apparently retain the full number of well-developed cell bodies, which show no signs of degeneration. The small blood vessels, those of the membranes, and those within the cord are free from any marked changes.

The literature of this subject includes in this country careful studies by Dana,[3] J. J. Putnam [3] and (with E. W. Taylor),[4] and Lloyd.[5]

Among a large number from foreign literature may be mentioned a very recent and elaborate study by Risien-Russell, Batten and Collier [6] of a series of cases of nearly the same character which, however, present some anatomical distinctions more or less differentiating them from ours. The limits of their group certainly do not exactly coincide with those of the Putnam-Dana type, and the authors are inclined to lay less stress upon the blood changes.

[3] New York Medical Record, 1887; Brain, 1889, p. 490; Journal Nervous and Mental Disease, 1891, p. 205, and 1899, p. 1.
[3] Journal Nervous and Mental Disease, 1891, p. 69.
[4] Boston Medical and Surgical Journal, September 20, 1900, p. 297, and Proceedings of American Neurological Association, 1900.
[5] Journal Nervous and Mental Disease, 1895, p. 225.
[6] Brain, Spring, 1900, p. 139.

THE DIFFERENTIAL DIAGNOSIS OF INTESTINAL OBSTRUCTION.[1]

BY Z. BOYLSTON ADAMS, M.D., FRAMINGHAM, MASS.

To make a complete "dynoptic picture of the diagnosis," as described by Valleix, would be impossible in intestinal obstruction unless in a volume. The number is legion who have written more or less at length upon this important subject. A study of the symptoms and causes is all that I shall attempt in the present paper.

Among causes we find such things as paresis and nervous inhibition;[2] muscular spasm from straining at stool or the abuse of purgatives, or from extraneous causes such as impaction of the ureter; embolism of the superior mesenteric artery; cancer and sarcoma and tumors of various sorts; gall stones and enteroliths, and the presence of foreign substances, such as hair, magnesia, etc.; ulcers in the bowels; stricture of the rectum; abscesses of various origin, including perityphlitis; hernias, reduced or not, or caused by mesenteric openings or bands of cicatricial tissue; intussusception; volvulus; and lastly tubercular or purulent peritonitis and syphilis. These causes act in three principal methods, namely, by invagination, by pressure or impaction, or by strangulation.

It is idle to insist upon the inadequacy of statistical tables in determining the diagnosis. We may, however, affirm that in a majority of cases, acute or chronic, such as are ordinarily met with, it is possible to find in the previous history or in the clinical observations and local phenomena, by palpation under ether or examination per rectum, a cause, quasi-mechanical, which does not require a differential diagnosis. Some few there are among the many causes mentioned which seem to be doubtful, or are so rare that they may be said to be non-existent.

It must, I think, be admitted that volvulus is rarely, if ever, a cause of fatal obstruction. Dr. Thomas Bryant, the famous London surgeon, in his Harveian Lectures upon this subject does not mention it except to say that it might have been suspected in a certain case which he describes. My old instructor, Dr. J. B. S. Jackson, declared that he had never found volvulus at the autopsy, although not rarely diagnosticated before death.

We have the authority of Gross, Erichson and others for the statement that closure of the bowels by spasm alone, sufficient to prevent the passage of feces and even of air, has been the cause of death. This has been denied by Dr. Frank Hamilton on anatomical grounds, although Dr. Hamilton admits that spasm of the muscular coat of the intestines, with relaxation and dilatation above the spot so contracted, may produce the phenomena of fatal ileus. And this, I believe is usually the case.

Leichtenstern, in "Ziemssen's Cyclopedia," says that without important testimony, objective or derived from the previous history, the diagnosis of constriction cannot be made with certainty, and Rokitansky and other morbid anatomists have shown us that invagination of the intestines may occur without appreciable symptoms to indicate its existence during life. That is, we may have obstruction by invagi-

[1] Read before the Framingham Medical Society, December 4, 1900.
[2] At the autopsy of a child made by the writer, assisted by Dr. Sylvester, of Natick, it was found that numerous invaginations of the small intestines had followed upon a kick bruising the kidney. That this injury was the exciting cause of the invaginations was inferred from the history.

nation or otherwise, without great tympanites, tenderness, obstinate vomiting, etc., and with the occasional discharge of fecal matter in the stools. Dr. Benjamin Phillips found in 169 cases of fatal obstruction from all causes 63 cases of invagination. It should be borne in mind that obstruction of the bowels may remain latent for a long time.

In a valuable monograph[3] a record is found of 56 cases. An erroneous diagnosis was made in 27. In some of these a wrong diagnosis was made several times and by different men. In 10 cases only was a correct diagnosis made. Obstruction of some sort was, however, made out in 18 cases, if we admit among these 3 of worms, 1 of abscess, 3 of prolapsus of the rectum, 1 of polypus of the rectum, and 6 of cancer or intestinal tumor. In 13 instances the diagnosis shows apparently no suspicion of any obstruction of the intestines. Among the various diagnoses were 1 of fever, 1 of some inflammatory process, 1 of cancer of the stomach, 1 of ulcer of the stomach, 1 of dyspepsia, 1 of peritonitis, 1 of peritonitis with gastro-enteric ulcer, 1 of gastro-enterocolitis, 1 of poison, 1 of flux of the bowels and 3 of chronic dysentery.

By carefully sifting the evidence upon which these mistaken diagnoses were based, Raffinesque finds that the first and most important differential diagnosis is between obstruction and *dysentery*, or some ulcerative or irritative process going on in the intestinal tract accompanied with occasional colic pain with bloody or slimy matter in the stools and tenesmus. This description would embrace more than half of the errors above enumerated.

(1) In dysentery, chronic or acute, there is fever, marked by high temperature, thirst, a hot skin, etc., symptoms that are rarely, if ever, observed in intussusception.

(2) In the latter there is tenderness at a particular spot in the belly, which serves as a guide to the seat of the trouble. This is not true of dysentery. Whenever this symptom is present in a case of presumed enterocolitis, enteric ulcer, flux of the bowels, or other dysenteric conditions, ether should be given and the abdomen thoroughly explored over the region of tenderness, the most important pathognomonic indication being the finding of a tumor at the point indicated by the tenderness; ether aiding materially in this exploration by relaxing the abdominal walls, which on pressure become tense and resisting by pain.

(3) The occurrence of colic pain in paroxysms; a symptom almost invariably present in invagination, and very unusual in dysentery. In chronic cases, especially in thin subjects, the intestines can be seen and felt writhing and rising up against the abdominal wall, and giving valuable evidence of the presence of obstruction.

(4) It is important to remember the frequency of invagination as a cause of intestinal obstruction in infants, and exploration of the rectum should be added to the other means of diagnosis. Of course in dysentery no tumor would be found, but impacted feces, foreign bodies, constrictions, ulcers and sometimes invagination, might be thus disclosed.

(5) The history of the case. In favor of obstruction of some sort there may be hernia, external or internal, reduced or unreduced; the fact that indigestible things have been swallowed, hair, for example, or calcined magnesia; a history of the existence of some tumor; of wounds or injuries; of peritonitis or typhlitis, with probable adhesions; or of invagination recovered from in childhood; and perhaps paralysis, lead poison, and possibly syphilis. On the other hand, in favor of dysentery or some intestinal ulceration there would be a history of fever, and as an explanation of tenesmus and hemorrhage there may be such things as cirrhosis of the liver, embolism of the superior mesenteric artery, and perhaps other disorders. A case is reported also of bowel obstruction caused by diphtheritic membrane.

In view of the great relative importance of invagination in fatal bowel obstruction, being about 40% of all the causes put together, the following diagnostic picture is valuable: Constipation, with repeated attacks of a dysenteric nature, but without marked fever; paroxysms of colic pain with tenderness in a particular point, and the presence of a sausage-shaped tumor not accounted for by anything in the previous history, are very strong points in establishing the diagnosis of intussusception. In infants this diagnosis is often very difficult, and cases are recorded of invagination in children with no other marked symptom than occasional bloody stools.

The second differential diagnosis, judging by these cases of Raffinesque, is that from chronic and tubercular peritonitis, especially in young subjects.

(1) Vomiting. This symptom is almost invariably present at some time or other in obstruction, while in chronic peritonitis it rarely occurs except from special cause.

(2) The colic. This is perhaps the most common and constant symptom of intestinal obstruction, and occurs in occasional paroxysms. In chronic peritonitis the pain, if any, is usually dull in character, not paroxysmal, and not accompanied by straining and tenesmus.

(3) Tenderness in one particular point. This is characteristic of obstruction, and is very seldom marked in chronic peritonitis, although in infants we may find it difficult to establish this fact.

(4) Emaciation. This is very marked in cases of chronic peritonitis; whereas, according to Rilliet, it is by no means extreme in invagination or in more or less partial obstruction in infants.

Moreover, examination under ether enables us usually to establish the fact of the non-existence of any foreign body or tumor pressing upon the intestine or obstructing its lumen from within. Ileus, volvulus, invagination are only three names for the same condition, although the etiology may be different. In appendicitis there is seldom any call for a differential diagnosis, as obstruction does not occur until a perityphlitic abscess has formed and is pressing upon the bowel.

Catarrhal enteritis, however, sometimes closely resembles invagination, and has been mistakenly diagnosticated. In both there is constipation, sometimes alternating with small thin stools, with localized colic pain and tenderness and a sausage-shaped tumor. The diagnosis here is based upon different grounds than those above mentioned. In invagination there is usually blood in the stools, retching and vomiting from the first, with complete absence of fever, while the tumor, which is upon the left side, can be felt writhing in the effort of straining. Hugo Engel, of Philadelphia, in a paper on "The Localization of Intestinal Catarrh," says, "If the dejections show the

[3] Etude sur les Invaginations intestinales chroniques par le Dr. F. G. Raffinesque, Paris, 1878.

typical bile-pigment reaction we may conclude that the bowels are pervious, and that peristaltic action is continuous throughout the whole tract."

Lead poisoning has been mistaken for intestinal obstruction. Here the diagnosis must be derived chiefly from the history. In syphilis the obstruction, according to Mr. Bryant, is caused by ulceration, especially of the rectum.

The most important differential diagnosis from the point of view of treatment lies between strangulation and impaction or closure of the intestines, occluding the lumen, whether from within or from without. When palpation under ether fails to disclose the nature of the tumor, the anamnesis is of importance. The family tendency, the fact of injury or of surgical operations, of previous attacks of similar nature, of hernias, reduced or not, of the ingestion of indigestible substances, poisons, etc., should be inquired into. The clinical history usually enables one to decide between the acute and the chronic, the febrile and non-febrile, complete and partial forms. Examination per rectum should never be omitted, and much may be accomplished in certain cases by the persistent use of high-up injections. The employment of purgatives or opium is both misleading and dangerous, and the only word to say about treatment is this, namely, that whenever the diagnosis of intestinal obstruction, acute or chronic, whether by invagination, occlusion or strangulation, is made, a surgeon should be called to the case. The operation of celiotomy in experienced hands is comparatively safe, and may be the means of saving many lives. The fatal result comes usually from overdistention of the gut above the seat of obstruction. None of the means pointed out should be neglected, so that one may arrive without delay at a correct diagnosis. No positive and definite line can be drawn, however, which will apply to all cases, and death has been known to occur from intestinal obstruction in forty-eight hours and even less, without severe pain, marked distention or much vomiting.

Clinical Department.

A PHYSIOLOGICAL SOLVENT IN THE TREATMENT OF PUS GASES.[1]

BY CARL E. MUNGER, M.D., WATERBURY, CONN.,

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THE physiological function of gastric juice is to break down and dissolve all the alimentary proteids, converting them into soluble albumoses and peptones. The gastric juice is also antiseptic and bactericidal, and thus not only enables us to appropriate food, but confers in health a certain immunity against sources of infection in food and drink. These are no doubt familiar facts; but when my attention was recently called to the use of an artificial gastric juice as a solvent for pus and broken down tissue, they took on a new significance. The technical employment of artificial digestion *in vitro* in the production of peptones from various food proteids is already long established. The proteid matter of suppurating tissue is in its nature quite as responsive to the enzymic action, and is even more penetrable than ordinary masses of food.

I was, therefore, impelled to give consideration to this suggestion, new to me, of gastric juice as a physiological solvent, as presenting on *a priori* grounds obvious advantages over chemical agents. In H_2O_2, for instance, which is of undoubted value, there is the disadvantage of its creating much gas, which produces pressure, which pressure may be beyond our power to control. Whilst the broken down tissue is not destroyed, the soluble substances into which it is converted by enzymic action are readily removed by irrigation, and the artificial gastric juice itself is incapable of producing systemic poison.

The product which I have used, enzymol, is a sterile fluid, which, when diluted with an equal volume of water, has about the acidity of normal gastric juice, and is then suitable for use in most cases. It possesses great proteolytic energy. It exhibits marked action as an antiseptic and deodorizer, offensive odors yielding to a few applications. It has agreeable qualities, and does not produce irritation except in cases of sensitive mucous membrane.

In some cases the matter readily yields to the solvent; in others it is necessary to keep the solvent in prolonged contact, with repeated washing and renewed application. In every case the procedure is based upon the fact that the action is essentially physiological, not at all similar to that of a chemical which instantly attacks the surface it touches.

CASE I. The first case that I used this on was an old middle ear and mastoid case in which there had been a foul-smelling discharge from the external ear, and also behind the ear through a fistula in the mastoid bone. Three injections of a 50% solution of enzymol at intervals of twenty-four hours stopped the discharge entirely. There has been no further discharge, now seven weeks after its use — this without any other treatment. This ear had been continually running for two years in spite of frequent cleansings and treatments with H_2O_2, boracic acid in powder and solution, corrosive-sublimate solution, aristol, iodoform, iatrol, etc.

CASE II. Acute purulent otitis media. The patient, a girl twelve years of age, came to my office January 11th with a typical case of otitis media acuta purulenta. The ear had been running ten days. The discharge was copious but not foul smelling. This was treated with injections of hot boracic-acid solution, followed by instillations of H_2O_2, into the ear three times a day for twelve days. I then injected a 50% solution of enzymol into the ear, and instructed the mother to do this twice a day. Eight days later the patient returned with the history that after the injections had been used three times at home the discharge had entirely ceased, and there had been no more discharge. Examination showed that there was no discharge, and that the hearing was practically normal.

CASE III. Young man, age twenty. Polyps in both ears, or rather stumps of snared-off polyps. There had been a very offensive discharge for months, which had been aggravated by an attack of influenza. One week's use of enzymol, an injection of 5 drops of a 50% solution twice a day, stopped the discharge in a week, and the accompanying foul odor. Seen a week later there was still no discharge and no odor.

CASE IV. Baby, one year old. Vaccination sore,

[1] Read before the Waterbury Medical Society, November 12, 1900.

deeply ulcerated and covered with foul-smelling pus and broken down tissue. Four applications, at intervals of twelve hours, of a 50% solution of enzymol caused the ulcer to be dried, healed and non-odorous. At the first application there was considerable smarting, lasting a few minutes. The subsequent application caused no pain.

CASE V. Adult, female. Ulceration of triangular cartilage of months' standing. One application thoroughly rubbed in caused this to heal, though it again ulcerated some weeks after.

CASE VI. Baby, cervical abscess. Abscess opened, washed out with enzymol once, entirely healed three days later.

CASE VII. Girl, eight years old. Abscess of neck due to broken down lymphatic glands. Opened and enzymol used daily. This was a case which should properly have been curetted, but I wished to see if enzymol would disintegrate the remainder of the gland which was not broken down. It did not do this, but did keep the wound sweet and clean, with a healthy granulating surface.

CASE VIII. Abscess of arm in a man, probably tubercular. This was opened, and enzymol, 50% solution, injected into the abscess cavity, which was healed in two days.

CASE IX. Ulceration of septum, syphilitic, with troublesome formation of crusts. Enzymol used, 33% solution twice a day for one week, almost entirely relieved the patient of this condition.

CASE X. Boy, fourteen years old, came into the Waterbury Hospital with an abscess probably appendicital in origin. This was opened and 16 ounces of foul-smelling pus with broken down tissue was evacuated. Enzymol, 50% solution, was used in this cavity, with the effect of quickly stopping the foul smell and the formation of pus. The enzymol was injected twice daily and later every other day. The cavity is healed, there being only a small sinus left, which is quickly healing. The enzymol was left in the cavity ten minutes and then washed out with normal salt solution. The wound became infected shortly after the operation, and was covered with a thick fibrinous deposit. The effect of enzymol on this was particularly interesting and instructive. It could be seen to dissolve the membrane and leave a bleeding, healing surface.

CASE XI. Man, a caster, injured by having molten lead fall in top of shoe between shoe and foot and burning the top of foot severely. This wound was seen three days after injury, and the condition was as follows: A destruction through entire thickness of skin forming an ulcer 2 inches in diameter and covered with a foul-smelling slough. This wound was treated by binding absorbent lint soaked in 50% solution of enzymol, and at the end of three days the appearance was that of a clean, healing, granulating wound.

CASE XII. Man. Extensive cellulitis of front and side of chest wall. In this case large amounts of enzymol were used by injection through drainage tubes, and into several deep pockets formed by broken-down cellular tissue. The results here were extremely satisfactory, as the enzymol fairly dissolved the broken down tissue so that it could be easily washed out through the drainage tubes.

I tried enzymol in a case of chronic cystitis, but was disappointed in its action, as from its former use I was led to believe that I had found a remedy *par excellence* for this troublesome class of cases. I used both a 50% and 33⅓% solution, but the symptoms were aggravated, and I abandoned its use for other remedies. In another case I should recommend a much weaker solution and should hope for better results.

I have used this remedy in nasal wounds, such as division of synechiæ and operations on the septum, with the results of finding that the wounds kept sweet and clean and healed readily.

This can hardly be called more than a preliminary report, but the results have been so satisfactory thus far that I feel justified in reporting them, and shall continue this method of treatment in these classes of cases in which at this writing it seems to me of value and scope yet to be fully determined. This remedy appeals to me as being especially applicable for use in diseased cavities, sinuses and fistulas, and wherever there is found broken down tissue — bony, lymphoid, muscular or cellular.

I believe that solutions of enzymol may be used much weaker than the 50% solution which is recommended, and in fact must be so used on mucous membrane to avoid undue irritation.

When using enzymol in mastoid cases and suppurating middle-ear cases, I find that these cases do better when the enzymol is used thoroughly and *injected* into the middle ear or through the mastoid wound, not merely dropped in.

Reports of Societies.

THE NEW YORK OBSTETRICAL SOCIETY.

STATED meeting, November 13, 1900, the president, DR. H. J. BOLDT, presiding.

DR. E. B. CRAGIN presented a patient upon whom operation had been performed for

FULL-TERM ECTOPIC GESTATION,

the child being alive, in perfect condition, and presented with the mother to the society. Mrs. K. W., age thirty-three years, a German, was admitted to the Sloane Maternity Hospital, October 16, 1900, with the following history: She had been married eight years, had two miscarriages, one at six, the other at four months, menstruation had been regular, and there was no history of endometritis or pelvic trouble of any kind. She had her last regular menstruation in January, 1900. In February she flowed for two weeks. In March she had a severe attack of abdominal pain which kept her in bed one week. After this she was well, except for alternating constipation and diarrhea during pregnancy. "Life" was felt in June. She had had pains in the back for two weeks before admission, and for two days before admission she had had several pains in the abdomen. On admission the pulse was 120; abdominal examination was negative on account of tympanites and rigidity of the abdominal walls.

Vaginal examination showed the vertex low down in the posterior cul-de-sac, almost on the perineum. High up behind the symphysis the finger could just reach the posterior lip of the cervix, but could not enter the cervical canal. As delivery *per vaginam* seemed impossible, it was determined to enter the abdomen. It was then found that the case was one

of full-term ectopic gestatation, within the folds of the left broad ligament, pushing the uterus up against the anterior abdominal wall and dissecting the peritoneum from the posterior wall of the uterus. As a result of forty-eight hours of spurious labor, the ectopic sac was found ruptured and the intestines covered with fresh fibrin stained with meconium. The point of rupture was quickly dilated with the finger and the living child extracted, which is here presented. The placenta was chiefly attached to the left broad ligament, and it was found that the maternal vessels supplying the area could be ligated. The uterus was so incorporated with the sac that it was decided to remove it, the sac and placenta *en masse*.

The patient has had a smooth convalescence. The baby was kept in an incubator for one week, then for one week in cotton, and since then it has been out of cotton. At birth it weighed 5 pounds, and now weighs 5 pounds and 7 ounces.

Dr. Cragin again drew attention to the fact that the viable ectopic fetus was worth saving, and with certain limitations, attempts to save the child do not seriously increase the mortality to the mother, and that the child in ectopic gestation should receive more consideration than it enjoys. He believed that at present, in the majority of cases, the placenta is so attached that it is safer not to remove it as the primary operation, but that occasionally, as here, the attachment will be such that the maternal blood supply can be ligated and the placenta safely removed.

DR. E. A. TUCKER emphasized the importance of making an early diagnosis of spurious labor, for the reason that operation could then be successfully performed, whereas in the later cases the mortality to the child in particular was necessarily great.

DR. CRAGIN said that the best time to operate was two weeks before full term, so as to get ahead of the spurious labor, and in this way get a living child.

DR. A. BROTHERS presented a specimen of

MALIGNANT CHORION EPITHELIOMA, OR SO-CALLED DECIDUOMA MALIGNUM.

The patient was twenty-four years of age; menstruation regular up to June, 1899, when, after bleeding for a month, she had an eight weeks' miscarriage. In June, 1900, after suffering considerable pain due to delayed menstruation, she began to bleed, and lost so much blood that on June 21st she was curetted. The scrapings were examined and showed no evidence of malignancy. She remained well for two and one-half weeks, when bleeding came on in an irregular manner, would last several days and then disappear for two or three days.

Suspecting the condition known as deciduoma malignum, the patient was anesthetized, and the long conical cervix dilated, after which it was incised laterally to a depth of 1 inch. The cavity contained a small tumor, found later to consist of myxomatous tissue, with no evidence of malignancy, and the interior of the uterus was subjected to a thorough curettage. After irrigation, the incisions were closed, everything pointing against malignancy. The patient remained well until the last week in September, when she had another exhaustingly profuse hemorrhage with large clots. This was succeeded by such a large hemorrhage that a doctor called to the house was obliged to pack the vagina with gauze and transfer her to the hospital. The vagina was douched several times, and then repacked without benefit. The cavity of the uterus was then swabbed daily with 95% carbolic acid, and then for a few days with 10% ferriphyrine. On October 25th the house surgeon of the hospital did a curettage, but in spite of the presence of some foul-smelling tissues still left in the uterine interior, he was obliged, on account of fearful hemorrhage in the almost pulseless patient, to suspend the operation and rapidly pack the uterus and vagina to their full capacity with iodoform gauze. There was now no doubt that radical operation alone could be of any avail, and preparation was made for vaginal hysterectomy. The operation was performed under intraspinal anesthesia, and while one of the staff injected several quarts of saline solution into one of the veins of the elbow, the uterus was quickly removed, about seven minutes being required. The patient made an uninterrupted recovery, although convalescence was slow on account of the anemic condition. The pathologist reported that he was inclined to designate the pathological condition as so-called "deciduoma malignum."

DR. J. E. JANVRIN presented a specimen of a

LARGE MULTILOCULAR FIBROMA OF THE UTERUS,

removed by abdominal hysterectomy. The patient was forty-five years of age, and had had a miscarriage at about the fifth month, twelve years ago. Two and one-half years ago, she noticed an enlargement in the right pelvic region, and since that time a gradual increase in size has taken place. In certain months the menses have been more profuse than usual, but general health has been good. In July of the present year examination revealed the presence of the fibroma, its apex extending upward to the right of the median line, for a distance of four fingers above the line of the umbilicus, crowding up against the liver and under the false ribs. There were numerous adhesions in the pelvic cavity, and no mobility of the mass in its lower half, but the upper half was movable. Tonics were given, and frequent hot douches ordered, in order to prepare the patient for operation. In October, with the patient in good condition, hysterectomy was performed, the operation requiring two and one-half hours on account of the difficulty in breaking up adhesions. The bladder had become firmly adherent to both the anterior surface of the tumor and the abdominal wall, its fundus reaching almost to the umbilicus. In spite of the utmost care in making the incision, the bladder was entered, the escape of urine into the abdominal cavity being prevented by the strong adhesions formed. The opening through the bladder wall was immediately closed, and the incision continued upwaard nearly to the sternum, which enabled the operator to dissect the bladder from the tumor. The broad ligaments were finally clamped and ligated and hemorrhage effectually controlled. The whole mass was then lifted from its capsule of adhesions, and removed, leaving about ½ inch of cervix to form a roof for the vagina. Peritoneal tissue from the posterior wall of the tumor, with capsular tissure, made a thorough covering for the stump, ligatures and cervix, thus leaving the abdominal cavity free from raw surface. The shock of the operation was considerable, and several quarts of warm normal saline solution were left in the abdominal cavity. The patient made a satisfactory recovery. The weight of the tumor was 8 pounds.

Dr. Janvrin then presented a specimen of

CANCER OF THE UTERUS,

abdominal hysterectomy being complicated by an ovarian tumor. The patient was fifty-nine years of age; she had had one child thirty-four years before, and was badly lacerated at its birth. Five years ago the cervix and perineum had been repaired, and there was no evidence of malignant disease. Sudden hemorrhages occurred in July and September, and the cervix was curretted by a physician in another city, who advised against radical operation. In October Dr. Janvrin found the cervix to be the seat of a cancerous infiltration, and there was also a tumor occupying, as it seemed, the body of the uterus. The mass was so hard and firm, of the size of an infant's head, that diagnosis of fibroma was made. Radical operation was performed in November. The tumor was found to be a very tense and inelastic ovarian growth, originating in the left ovary, and firmly bound down to the fundus by old adhesions. The contents were evacuated, and the sac removed with the uterus, the cavity being well filled with iodoform gauze, reaching down and out of the vagina. The pathologist reported the case to be one of rapidly developing epitheliomatous infiltration. Dr. Janvrin stated that it was not his usual custom to remove the uterus where the disease had extended into the parametrium, but in this case there was doubt and there had been the ovarian tumor to be removed also. The patient has made a good recovery from the operation, but further extension of the disease was to be expected.

DR. BROTHERS remarked that the case was interesting because of the fact that the operation was preceded, five years before, by a trachelorrhaphy He believed that the impression existed that trachelorrhaphy had an influence in preventing cancer.

DR. JANVRIN stated that this was the first case in his experience where cancer of the cervix had developed after trachelorrhaphy had been done. At the time of the operation five years before, the sections of cervix which were removed were thoroughly examined, and there was no evidence of malignancy.

The paper of the evening was read by DR. SIMON MARX. His subject was

MY FAILURES AND SUCCESSES WITH SPINAL ANESTHESIA.

The peculiar title of the paper about to be read will at once attract the attention I wish, for I am fully prepared to report the failures of this procedure. I have already so covered the ground of my successes that many would imagine that spinal anesthesia cannot fail. No method, mechanical, therapeutical or surgical, has ever been used without its quota of failures. My successful punctures were so continuous that I never expected a failure. It was only after doing from 60 to 70 punctures that my failures, 2 in rapid succession and for one operator and before one audience, occurred, placing me in as humiliating a position as any honest investigator could possibly be. They were such convincing failures that only the veriest dreamer could have thought them otherwise.

As to my successes I have little to say, since I have said enough in other places. So far as I am concerned, "Be the destiny of the method what it may, to you," I know from a very large experience what I can do with medullary narcosis. I do not need to defend this little operation; it needs no defence. We realize its possible dangers, immediate and remote; we know it occasionally fails, and we do not expect too much from it, for spinal anesthesia will never take the place of cerebral anesthesia, for its sphere will ever be limited to well-defined cases.

I know it will please you not alone that Corning originated this operation, but that the first extensive original experiments were done by two Americans, Drs. Dudley Tait and Guido Caglieri, of San Francisco, Cal., and published by them in the *Transactions of the Medical Society of the State of California*, April, 1900, under the heading, "Experimental and Clinical Notes on the Subarachnoid Space." The experiments, both physiological and clinical, are the first extensive experiments on record pertaining to cocainization of the subarachnoid space.

I have had in the neighborhood of 100 punctures with 2 failures. Both occurred in intensely neurotic women (Italians) upon whom pelvic operations were to be performed. By careful analysis as to the causes of these failures I am able to exclude all but an idiosyncrasy to the drug and again to the highly nervous condition of the patients. The more nervous a patient the more likely is the spinal anesthesia to fail. The possible causes of failure may be enumerated as follows:

(1) *Inert cocaine solution.* — Repeated sterilization absolutely spoils the cocaine. We never employ a solution that has been boiled more than once, but have the solution freshly prepared for each patient; at least it should not be more than one day old.

(2) *Too little of the drug used.* — This is a factor that can never be gauged, since a small dose will bring success in one case, and absolutely fail in another. In obstetrics we find from a study of our cases that between $\frac{1}{4}$ to $\frac{1}{3}$ of a grain is sufficient. In surgery we certainly have seen most brilliant results from smaller rather than larger amounts, from $\frac{1}{8}$ to $\frac{1}{4}$ grain. We have never been compelled to give a larger individual dose, and we would consider doses of from $\frac{3}{4}$ to 1 grain highly dangerous.

(3) With an imperfect syringe backing of the solution behind the sucker would cause the fluid to be ejected instead of injected. For this reason after the injection we always slightly withdraw the piston to be sure that this does not take place. Of course here comes the advantage in using a glass instead of a solid metal hypodermic.

(4) Idiosyncrasy is a condition that can never be foretold. It is a well-known fact that cocaine will never bring certain patients under its influence, no matter where or by what means used. This condition is especially associated with highly nervous and hysterical patients.

(5) *Faulty technique.* — Where care is used in following carefully the directions given, success in the largest majority of cases follows. The largest numbers of failures are due, we believe, to non-entrance into the canal, whether due (*a*) to faulty technique, or (*b*) to too short needle; the average needle should be about 10 centimetres long, but the distance to be traversed will rarely exceed 6 to 7 centimetres. Of course in a very obese patient it may be necessary to exceed this distance, but this seldom is the case. (*c*) A very dull needle point may, by pushing the membranes before it, prevent entrance of the fluid, and yet, on the

other hand, a very large pointed and sharp needle may throw the solution beyond the canal. For this reason my points are exceedingly short, more on the trocar order, for long points may wander beyond parts under control and prevent what is essential to success, the escape of spinal fluid. (*d*) Again, very large-calibre needles, by making inordinately large apertures in dura and pia spinalis, predispose to the extravasation of our medicinal fluid. Therefore it is wise after the injection to hold the needle in place for a minute or so in all cases, but it is best overcome by using exceedingly fine aspirating needles for this purpose. (*e*) Disturbing the relation of the needle point to the canal while screwing or fixing on the barrel is a not uncommon possible cause; for, if clumsily done, it is possible to withdraw a short bevel, and by such faulty action throw the cocaine outside of the canal.

The author then described the correct technique of the operation: The injection is given between the fourth and fifth space, but the space between the third and fourth lumbar is equally desirable. Tait, in his experiments, and in his operative work in 3 cases, speaks highly of the sixth cervical space, as a way that is sure and extremely easy in the human being. We, nevertheless, object to inject in this area for the sole reason that the solid cord lies here; further, that the nearer the skull cavity the cocaine is injected the greater the toxic influence of the drug. We have been so well satisfied with the fourth lumbar space that we always elect it when at all possible. To ensure absence of pain from the puncture through the skin, a freezing spray is used. From 8 to 15 metres (as the needle holds about 3 metres we must allow for this, and the barrel of the syringe charged with the exact amount) of a 2% solution is used, representing between $\frac{1}{6}$ to $\frac{1}{4}$ grain of the salt. The needle is held *in situ* for a minute to plug the arachnoid puncture and ensure the impossibility of its escape, then withdrawn and the puncture sealed. Within from two to three minutes anesthesia is ushered in, occurring somewhat suddenly, occasionally preceded by a marked hyperesthesia. There is often trembling of the limbs, and a feeling of formication in the affected areas. Vomiting often accompanies the symptoms, but is very evanescent. Operation can usually be commenced as soon as firm pinching or pulling upon the labia elicits no pain. If at the end of fifteen minutes the desired result is not obtained, the injection of a smaller dose may be repeated. My clinical experience has taught me that the area of anesthesia varies considerably, and cannot be influenced by either the dose given or the force with which the solution is thrown in.

The post operative symptoms are due to a disturbance, in part, of the equilibrium in the subarachnoid space, and could be avoided by the preliminary extraction of a small amount of fluid, and by making the injection slowly. Again, the amount of cocaine was an important factor. With more than $1\frac{1}{2}$ cubic centimetres of a 1% solution, or more than 1 cubic centimetre of a $1\frac{1}{2}$% solution, we generally noted nausea, headache and weakness. Nirvanin and eucaine produce less analgesia and disappear more rapidly.

Tait and Caglieri conclude (in part) as follows:

(1) To the lumbar route they propose to add the "low cervical" in the sixth cervical space — both easy and safe.

(2) Direct intramedullary medication is feasible and deserving of further trial.

(3) Subarachnoid injections are devoid of danger if made with certain precautions. The solution should be freshly prepared and injected slowly at a temperature of 37° C. and never in greater amount than 3 cubic centimetres.

(4) The extent and duration of the analgesia thus induced are generally in direct proportion to the amount of the drug injected. Analgesia is noted in some cases as early as five minutes after the injection, and in others, for unknown reasons, as late as thirty-five minutes. Its duration is sufficient for the performance of all operations on the lower limbs and pelvis, and may be of service in obstetrics.

(5) The disagreeable effects sometimes noted are partly due to the sudden increase of pressure in the subarachnoid space, to too rapid diffusion towards the brain, and principally to the amount of cocaine used. These post-operative symptoms are never alarming nor lasting. They recall the intradermic effects of cocaine, and never resemble in severity the symptoms so frequently observed during or after chloroform or ether anesthesia.

(6) One cubic centimetre of a 1% solution of cocaine, injected slowly, is generally sufficient for all practical purposes, and has not been followed by untoward results.

(7) For obvious reasons it is a good plan to withdraw a small amount of cerebrospinal fluid prior to making an injection.

A last and very potent factor combining to make an otherwise good narcosis a failure is noise, bustle and excitement during the operation. These patients must be protected from extra annoyances, at least excusable or avoidable ones, whether by obtunding their otherwise markedly increased powers of sight and hearing by medical means, as a preliminary dose of morphine, or mechanical, which I consider far better, that is, plugging the ears and blindfolding them, or by means of a screen, shutting off their power of sight. As to measures directed against the post-operative symptoms, we still pin our faith to the bromides given in large doses, 30 to 40 grammes, one to two hours before the operation. This drug has answered us admirably in many cases. Possibly a combination with caffeine might enhance the value of its effect. Personally we have no experience with this combination, but caffeine has been highly lauded by others; a combination of both might be exhibited with more beneficial effect. Where no result is obtained from the bromides, and the vomiting persists, which is unusual, or the headache and the other symptoms are pronounced, hyocine hydrobromate in doses of $\frac{1}{200}$ to $\frac{1}{100}$ grammes as a powerful cerebral sedative is of considerable value. We still retain the use of nitroglycerin where cyanosis or dyspnea becomes apparent. But since we have never seen this condition in labor, we have had no occasion to use it.

Now as to my labors, over 40 in number: Motor disturbances of the uterus we have never seen, for the uterine contractions go on regularly, and under their influence the os dilates as under normal conditions; and all this time while the patient has some indescribable sensation, but not one of pain, she is delivering herself as naturally as if her symptom of pain was not masked. Under these conditions we only recognize the powerful contractions either by placing the hand on the abdomen, or by exposing the protruding

and bulging bag of water or the advancing head. Reflex action of the abdominal muscles was found present only when incomplete anesthesia existed, and was then accounted for by the presence of pain. But when anesthesia was complete, spontaneous bearing down did not occur; voluntarily the muscles were not called into play; only when told to do so was the patient capable of bringing her abdominal muscles into play, and then as powerfully as under normal conditions. This I have always encouraged to further the *vis a tergo* in normal labors. I have done some extremely difficult operations under spinal anesthesia; in fact, all forms of obstetric operations were undertaken, except symphyseotomy and Cesarean section. Explorations, versions, forceps extraction, placental removal were done, not with as great ease as under chloroform, but with much greater facility than in a non-narcotized (chloroform) woman. It was never necessary to finish any operation under a general anesthetic when commenced with medullary narcosis. Relaxation of the uterus or even spasm of a severe grade was never encountered, nor was there a greater disposition to bleed than under ordinary conditions. We have never met involuntary evacuation of bowel or bladder such as occasionally occurs in surgical practice, even as often happens when ether or chloroform is administered, or as occasionally happens during labor under normal conditions. In all cases where cocaine was employed we obtained the happiest results. In no case were any bad symptoms noted, except in 1 case, where, by mistake, with the cocaine $\frac{1}{4}$ grain of morphine was administered. The patient developed all the symptoms of a grave opium poisoning, and required pretty heroic measures to bring her out of her soporous condition.

Dr. A. Palmer Dudley commented favorably upon the happy results Dr. Marx had obtained in obstetrics, but said that in general surgery he had used the method in 1 patient for amputation of the leg below the knee, with the result that within a few hours convulsions came on, twelve in number, the temperature rose to 103°, the pulse to 120. The urine was loaded with sugar, uremic conditions supervened, and the patient died. In another case he obtained intense reflex action, for which he used bromides. There were no convulsions and the patient did nicely. The third case he had had was one in which he did a curettage and divulsion for vaginismus. Twelve hours after the operation she became a raving maniac. Her temperature was 103°, and pulse 120, and the headache intense for nearly two days in spite of bromides. The patient, however, recovered nicely. All 3 cases had involuntary stools and incontinence.

Dr. Austin Flint, Jr., reported excellent results in 1 case of labor, but unsatisfactory results in 2 others. The headache was the worst feature.

Dr. Marx stated that he had never seen involuntary stools or urination in his cases, and a friend who had used the method for 37 operations had had no bad effects in that way.

Typhoid Fever at Galveston, Texas. — Typhoid fever prevails widely in Galveston, according to the *Medical Record*, the estimated number of cases in the city being about 500. It is believed that the infection is spread by the use of cistern water, contaminated at the time of the great storm.

Recent Literature.

Heart Disease in Childhood and Youth. By Charles W. Chapman, M.D. (Durh.), M.R.C.P. (Lond.), Physician to the National Hospital for Diseases of the Heart, Soho Square, E.; late Physician to the Farringdon Dispensary, E. C. With an introduction by Sir Samuel Wilks, Bart., M.D., F.R.S., Physician Extraordinary to H. M. the Queen; ex-President of the Royal College of Physicians, and Consulting Physician to Guy's Hospital. London: The Medical Publishing Company, Ltd. 1900.

Dr. Chapman has prepared a very readable little book. While it is scarcely to be expected that one should find a great deal that is new on a subject which has lately received much attention, the author is to be commended for the common-sense way in which he has handled it. The first portion of the book gives a brief outline of the "more usual varieties of heart disease as they occur in young persons," to quote from the preface, while the latter part is made up of illustrative cases which serve as a text for remarks on treatment and prognosis. The latter are always to the point and give valuable suggestions as to the management of these cases.

The Practice of Medicine. A Textbook for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania, and Physician to the Hospital of the University, etc. Second edition. Thoroughly revised and in parts rewritten, with 127 illustrations, including colored plates. Philadelphia: P. Blakiston's Son & Co. 1900.

It is four years since the appearance of the first edition of Dr. Tyson's "Practice of Medicine." This second edition, an octavo volume of 1,222 pages, deserves the same favorable comments as were made upon the first edition, with the additional statement that it has been revised and enlarged where needed in accordance with the progress and changes which have taken place during the intervening period. Of the changes the most numerous are to be found in the sections on the Infectious Diseases and on Diseases of the Nervous System.

The index also has been revised and enlarged as required by changes in the body of the book.

A Manual of Modern Surgery. An Exposition of the Accepted Doctrines and Approved Operative Procedures of the Present Time. For the Use of Students and Practitioners. By John B. Roberts, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic; Mutter Lecturer on Surgical Pathology of the College of Physicians of Philadelphia. Second edition, revised and enlarged. Illustrated with 473 engravings and 8 plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1900.

The author believes "that a volume from a single pen may be more equable in its teachings than a composite book from many minds," and this second edition of his book demonstrates its success. The book is certainly one of the best, if not the best, single volume textbooks on surgery.

The articles on Appendicitis, Diseases and Injuries

of the Joints, Diseases and Injuries of the Genito-Urinary Organs, Dislocations, Excisions and Amputations have been entirely rewritten.

It is essentially a practical book, the descriptions being simple and concise. From the size of the book the treatment is of necessity dogmatic, but this, from the student's standpoint, is perhaps a virtue rather than a fault.

The illustrations are, as a rule, satisfactory and are sufficiently numerous. They are evidently selected as typical of conditions, and not for the purpose of making "a picture book." It is a safe, conservative textbook to place in the hands of students and is thoroughly abreast with modern surgery.

Bacteriology and Surgical Technique for Nurses. By EMILY M. A. STONEY, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill., etc. Illustrated. Philadelphia: W. B. Saunders & Co. 1900.

This is a volume of 190 pages, much more limited in scope than the usual textbook, the chief function of which is the instruction of nurses. As indicated in the title, the book confines itself to bacteriology, surgical technique and closely allied topics. Naturally the bacteriology is not of a profound sort, nor can the discussion of immunity and phagocytosis, for example, be regarded as of great value. The following sentence (page 31) is perhaps calculated to mislead: "The theory is now known as the Metschnikoff theory of phagocytosis, and assumes an educated white corpuscle and cell body." We confess to a doubt of the advisability of such information for nurses, particularly in view of the possibilities of the future. Where is it all to end, is coming to be a more and more pertinent inquiry. The details of surgical technique, with the many admirable suggestions of a practical sort contained therein, are timely and valuable. The book, as a whole, is written in a judicial spirit and will, no doubt, be of value. We only hope that future editions may not go further into the obscurities of bacteriological research. The binding, paper and illustrations of the book are all satisfactory.

Fractures. By CARL BECK, M.D., Visiting Surgeon to St. Mark's Hospital and New York Polyclinic, etc. With an appendix on the Practical Use of the Röntgen Rays. Pp. 235, with 178 illustrations. Philadelphia: W. B. Saunders & Co. 1900.

This book is intended to encompass in a systematic treatise the important essentials compiled from publications on the use of the skiagraph in fractures, also from data derived from the author's personal study and experience. A study of fractures in the living subject is rendered possible, and developed by the use of the Röntgen method.

The introductory pages describe the discovery and development of the x-ray by Röntgen, and enumerate the various ways in which it is an aid to surgery, especially in the diagnosis and treatment of fractures.

Part I deals with the subject of fractures in general, their classification, statistics, diagnosis, process of repair, the conditions which interfere with repair, treatment, etc.

Part II discusses the fractures of special regions classified anatomically.

The last 52 pages are devoted to the practical use of skiagraphy. Here is described the apparatus, the character of the electric current required, the fluoroscope, photographic plates, etc., also what tissues and objects are visible by this method, and what has been demonstrated in the different pathological processes, or different tissues of the human body. The writer briefly enumerates the different methods by which the process is made available to different conditions, and states its present limitations and possibilities; for example, one reads how to photograph gall stones or renal calculi, how to determine the size and shape of the stomach, the position, size or shape of the heart, the presence of pulmonary or subphrenic abscess, trichinosis and many other things.

In conclusion the possible sources of error in the use of skiagraphy are enumerated.

The book appears to be carefully written, and is a very good résumé of the subject to date. It is especially interesting as showing the influence and value of the discovery of Röntgen on medical diagnosis and treatment. It suggests many possibilities to the student of surgical pathology.

The illustrations are a distinct feature of the work. Many are skiagrams which are exact reproductions of photographic prints. They show exceedingly well the points emphasized by the author.

The work of the publisher is admirable in every respect.

A Manual of Diagnosis and Treatment of the Diseases of the Eye. By EDWARD JACKSON, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. Pp. 604, with 178 illustrations and 2 colored plates. Philadelphia: W. B. Saunders & Co. 1900.

This book, as the author says in his preface, is designed to aid in the actual work of dealing with disease, and therefore gives the place of first importance to the recognition and management of the conditions likely to be presented early in practice rather than the rarer diseases and more difficult operations that may come later.

Anything that Dr. Jackson writes is well worth reading, and this book is no exception to the rule. The arrangement of the book is excellent, and the style clear and concise. The opinions given as to etiology, prognosis and treatment are always conservative and safe. The book has not been utilized to advance any hobby of the writer.

There is a very useful chapter devoted to ocular symptoms and lesions connected with general diseases, in which each symptom or condition as it is mentioned is referred back to the page in the volume where it is described, that cannot fail to make the book of great value to the general practitioner as a book of ready reference.

The work deserves success and will undoubtedly be widely read.

Hernia. Its Etiology, Symptoms and Treatment. By W. MCADAM ECCLES, M.S. (Lond.), F.R.C.S. (Eng.); Assistant Surgeon to the West London Hospital, etc. Pp. 231. New York: William Wood & Co. 1900.

This book is not intended to be a complete treatise of the subject, but to contribute for the benefit of the medical profession some facts relating to the origin, symptoms and treatment of hernia which have seemed of practical importance and value to the author.

Hernia in its various forms is discussed: Inguinal

hernia, femoral hernia, umbilical, ventral, obturator, and lumbar hernia, also inflamed, irreducible, obstructed, strangulated, sciatic, perineal, ischiorectal, vaginal and diaphragmatic, hernia of the urinary bladder, ovary and vermiform appendix. Finally, the relation of hernia to life and accident assurance, public service, foreign service, etc., is considered.

The book is interestingly written and well arranged. One can, as one reads, distinguish what points have especially attracted the attention of the author, or have aroused his interest, such, as would naturally be the case, being more exhaustively presented.

The text is illustrated by 97 cuts and photographs, the latter especially showing excellently well clinical cases and the application of trusses. The volume is one which contains much relating to the subject which is interesting and well worth reading.

A Handbook of the Diseases of the Eye and their Treatment. By HENRY R. SWANZY, A.M., M.B., F.R.C.S.I. Seventh edition. Pp. 607, and 165 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

The seventh edition of this popular book retains the alterations and improvements of the preceding editions, and has had added to it an account of Dr. Mackenzie Davidson's method of employing the Röntgen rays for the detection and localization of foreign bodies within the eyeball; an operation for ptosis by Mr. Mules; and three tables by Dr. L. Warner, giving action and values of the mydriatics, myotics and local anesthetics used in ophthalmology. Other minor changes have been made, all of which seem to have been well considered.

Diseases of the Throat, Nose and Ears. A Clinical Manual for Students and Practitioners. By P. MCBRIDE, M.D., F.R.C.P., etc. (Edin.), Fellow of the Royal Society of Edinburgh. Third edition, revised and partly rewritten. Edinburgh and London: Young J. Pentland; Philadelphia: P. Blakiston's Son & Co. 1900.

McBride's manual has been well known since its first appearance in 1892 as a reliable, conservative and satisfactory textbook. This is the second American edition, and does not differ materially from the first. The text has been added to in places, a little has been rewritten, and there are a few more cuts. This volume contains 744 pages, about a hundred more than the previous one, but this increase is in good part due to larger type. Most of the changes are simple insertions of paragraphs in the text, describing recent work, or the author's experience in the subject. A few unimportant new subjects have been added, such as the pharynx in myxedema, autoscopy, scleroma, myoma of the larynx, falsetto voice, inflammation of the lingual tonsil. Most American readers, at least, will be surprised to find that the subject of deviations of the septum still occupies the insignificant place that it did in the first edition. A short sketch of the Asch operation is added, but nothing about any other; while the author's accumulated experience has not justified him in taking out from this edition the following discouraging sentence: "My own experience has been that deviations of the septum are not a very satisfactory class of cases to treat, and unless the nasal obstruction is very marked, the patient if he be flippantly inclined, is prone to conclude that 'the game is not worth the candle.'" The subjects of tonsillitis and peritonsillitis are incomplete and confused with one another; there is but little improvement in this edition. The supratonsillar fossa is mentioned a few times, but neither the anatomy nor the pathology of these regions receives the attention which their importance requires. The tone of discouragement in giving the treatment for atrophic rhinitis has been changed to one of hope by the introduction of cupric electrolysis. The chapter on the accessory cavities has been enlarged, in accordance with the added experience of the author and recent literature. It is judicial and satisfactory.

The book is worthy of the popularity which it has attained, and in spite of a large number of recent rivals in the field will undoubtedly retain its share.

Modern Surgery, General and Operative. By JOHN CHALMERS DA COSTA, M.D., Professor of the Principles of Surgery and Clinical Surgery, Jefferson College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. Third edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1900.

As it is only two years since the publication of the second edition of this work, the fact that now a third appears can be taken as an indication of the popularity of this book, or the determination of its author to keep it fully up to date, or both.

The present edition in general attractiveness of appearance, arrangement of text, and excellence of press work resembles closely the handsome volume of 1898. Comparison of it with its predecessor causes one to note an increase in size. Its pages have increased in number from 883 to 1,083 and its illustrations from 386 to 493. This increase in the text is due partly to the introduction of new material and partly to the rearrangement of old, the table of contents showing slight changes, except in its increased number of pages.

It is written in the same direct style as formerly, and evidently the author had in view his former effort to eliminate all data or hypotheses liable to create uncertainty in the mind of the reader as to their correctness or efficacy. In short, everything obsolete, unsuccessful, uncertain or unessential was to be conspicuous only by its absence.

This plan is an excellent one for a student's textbook, provided the student is made to understand at the same time that he has not exhausted the subject of surgery by becoming familiar with its pages. The writer in his second edition carried this idea almost to its limit, and we cannot avoid the impression, as we examine the pages of his last work, that in this he has crossed the line, that at times the increase in subject matter has been made by the sacrifice of that directness, simplicity and positiveness which has been so attractive to the student, and so prominent a characteristic of the original work. The present volume contains at times a more extended exposition of its subject, yet one not full enough to form a complete review. The limited scope of the work must necessarily prohibit that, since modern surgery exhaustively treated cannot be compressed into a single volume.

The expert in surgery will still use the book as a convenient summary, which, although not always complete, will, at least, present an interesting résumé.

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WITH the beginning of the new century it is natural to review the changes which have taken place since the opening of the century just past, and the physician asks himself what changes have taken place in his own profession during the last one hundred years, and whether these changes have been commensurate with those in other sciences.

One of the great changes which has taken place is in our knowledge of the causation of disease. Not only do we refer many diseases to their origin in germ growth, but this discovery has helped to foster an entirely new variety of medical practice. Preventive medicine was practically unknown one hundred years ago. Our boards of health would probably at that time have been looked upon as meddlers with the individual rights of the profession. Today they are considered not only most important helpers in the prevention, but also in the treatment, of disease.

With the science of the prevention of disease has come in a whole series of new weapons with which to fight it, in the form of disinfectants. Some of these materials were used earlier, but in an uncertain, tentative manner, whereas now we realize more exactly how to use them and how much they may be expected to accomplish. The fires which our ancestors used to burn in the streets to dispel the plague we still use for disinfection, but in a more orderly and usually a less destructive manner.

The department of preventive medicine is but one of a whole series of specialties into which the science of medicine has been divided, and each one of these many specialties has its instruments of precision, many of which were unknown even fifty years ago. The ophthalmoscope is but one in a long list of such new instruments. The compound microscope has opened up a new anatomy and a new pathology. The stethoscope has enabled the physician to use the sense of hearing, which aided the physician of long ago but little, in determining the pathological processes going on under the surface. Electricity has helped still further to show matters which were hidden to the eyesight. What would have been thought of the physician who had dared to foretell, at the beginning of the nineteenth century, that before its close we should be able to see through the integument the broken bones beneath and to mechanically picture them?

Hardly a discovery in the whole range of physics and science but has added something to the practice of medicine. Photography plays its part in the recording of cases. The general use of rubber has contributed widely to the variety of the instruments which are today at the physician's command. Chemistry has not only added materially to our knowledge of the human frame, but has rendered the exhibition of drugs a matter of greatest simplicity. The products of petroleum have practically done away with rancid ointments of previous days, and synthesis has added a series of remedies which are not merely an addition to our pharmacopeia, but an addition to our therapeutics as well.

One has but to mention ether, antisepsis, x-rays, the compound microscope, the clinical thermometer, the stethoscope, the ophthalmoscope and the other instruments for showing morbid conditions previously beyond the reach of vision, the use of active principles instead of crude drugs, the subcutaneous syringe, the use of manipulation instead of brute force in the reduction of certain dislocations, to show how great has been the advance, not merely in the investigation, but in the treatment of morbid conditions, and this list is so far from complete that every one who reads will be able to suggest some important additions. To the physicians of a hundred years ago the physician of today would seem like a magician.

Having indulged in this brief but gratifying enumeration, let us as a profession not forget that *noblesse oblige*, that privileges and advantages imply correspondingly increased responsibility.

UNDERPAID PHYSICIANS OF PUBLIC INSTITUTIONS.

IT will be generally admitted that the life of physicians connected with insane hospitals has its very decided drawbacks. It is an isolated life; there is small possibility for the various social enjoyments which add to the variety of existence beyond institution walls; there is, furthermore, the inevitable limitation which surrounds men who are, in great measure, cut off from the companionship and stimulus of daily contact with fellow-workers. However we look at it, life at an institution entails a continual sacrifice of much that the ordinary man regards as essential to his enjoyment and well-being. In view of this fact it is noteworthy and somewhat remarkable that the State, whose faithful servants these men are, is quite willing to accept their services for a remuneration which is often beneath the value of their work, and which would be regarded as niggardly in many other employ-

ments. It is clear that the work of a superintendent, for example, of a large hospital for the insane is as arduous as one can well conceive. Not only are high qualities of mind demanded for the intelligent control and treatment of a difficult class of patients, but he must also combine with this technical skill an unusual degree of executive ability, in order to manage properly the mere routine of institution work. It is, therefore, simply a matter of justice that the services of such men should be properly recognized. We are glad, in this connection, to call attention to the report of the consulting staff of the Danvers Insane Hospital, recently published in the twenty-third annual report of the institution. After alluding to certain deficiencies capable of reform, the consulting staff brings up the pertinent and important question of the lack of permanency in the office of superintendent. It appears that since 1882 five superintendents have served, and that in the words of the report, "Each of these gentlemen resigned his connection with our asylum on account of the inducements offered him to better his material position elsewhere — inducements that probably no one of them would have felt justified in refusing. . . . The State of Massachusetts is amply able, and should be willing, to give the chief officer of the asylum a separate residence and a salary of at least four thousand dollars. And until it does this it will be liable to lose, one after another, from its servcie men whose abilities are unquestionable and whose experience is invaluable, thus depriving the institution that parts with them of the advantage of a settled policy, and greatly embarrassing the carrying out of plans that take much time for their full development."

With these statements we are in entire agreement. The time has certainly come for the State through its legislators to take such action in the matter that an adequate remuneration for this type of service be at once provided.

MEDICAL NOTES.

A BEQUEST OF ONE HUNDRED THOUSAND DOLLARS TO AN INSTITUTION FOR FEEBLE-MINDED. — It is reported that a bequest of $100,000 has been made to the New Jersey Training School for Feeble-Minded Children at Vineland, N. J., by Thomas H. Vinter, executor of the Maxham estate. The legacy will pay off all obligations and give the institution a cash balance of about $60,000.

LEPERS IN THE PHILIPPINES. — It is estimated that there are at present about 30,000 lepers in the archipelago, most of them being in the Visayas. The disease is supposed to have been introduced in 1633 from Japan. A commission is now engaged in selecting a suitable island or group of islands for the isolation of all lepers.

ARSENICAL POISONING OF BEER. — Arsenical poisoning in beer was the topic of chief interest at the opening session of the convention of the American Chemical Society recently held in Chicago, the discussion growing out of the recent wholesale poisoning in England. One speaker charged the brewers with wilfully introducing into beer an arsenical antiseptic to prevent the fermentation of the beverage from progressing too far.

ENCOURAGING REPORT REGARDING YELLOW FEVER AT HAVANA. — A recent report of the Havana Sanitary Department is more encouraging than any report since June. No Americans are sick with the disease. The 17 cases under treatment December 27th were all Spaniards, recently arrived in Cuba, and are being cared for in Spanish hospitals.

THE "PHILADELPHIA MEDICAL JOURNAL." — According to the *Medical News*, with the opening of the New Year, Dr. George M. Gould will retire from the editorial management of the *Philadelphia Medical Journal*, and the duties he has so ably carried on will be assumed by Dr. John Hendrie Lloyd and Dr. Julius L. Salinger.

SMALLPOX IN WASHINGTON. — Ten cases of smallpox, more virulent than the epidemic of last year, were reported December 26th. The disease is supposed to have been brought from Maryland by a negro.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 2, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 158, scarlatina 41, measles 56, typhoid fever 15.

THE OPENING OF THE NEW BUILDING OF THE BOSTON MEDICAL LIBRARY. — The new building of the Boston Medical Library Association will be opened Saturday, January 12th. The exercises will consist of addresses by the president and librarian of the association, and remarks by the president of the Massachusetts Medical Society; Dr. William Osler, of Johns Hopkins Medical School; Dr. John S. Billings, of the New York Public Library; Dr. H. C. Wood, of the Philadelphia College of Physicians, and Dr. H. P. Walcott, acting president of Harvard University. Communications are also expected from one or two other representative members of the profession.

CAMBRIDGE, MASS., STATISTICS. — The recent annual report of the Cambridge Board of Overseers of the Poor gives among others the following statistics: The city physician has made 862 visits upon 462 outside patients, and 1,642 visits upon 179 patients at the City Home. There have been 14 deaths at the institution and 37 deaths outside. The total expenses for outside aid, city home and city farm have been $78,574, and total receipts for same have been $5,973, making a net cost of $72,601 for the care of the poor, which is an increase of $7,840 over the previous year, caused very largely by the greater number of insane patients supported during the past year.

FOUR CENTENARIANS. — Adna A. Treat, born in Hartford, Conn., on April 7, 1797, died at Denver,

Col., on the 9th of December, at the age of one hundred and three years and eight months. James Reed, of Portsmouth, N. H., who celebrated his one hundred and fourth birthday December 9th, has died from the infirmities incident to old age. James A. Nichols, one hundred and eight years of age, died in Harwich, Mass., last week; he was a Welshman. Mrs. Mary Cullen, the oldest woman in Maine, died last week at the age of one hundred and five years, two months and five days. She was born in New Brunswick.

UNDRAINED LAND A MENACE TO THE PUBLIC HEALTH. — At a recent meeting of the Cambridge Medical Improvement Society, it was voted that the danger to the public health demanded the immediate reclamation of the undrained area between Arlington, Somerville, Belmont and Cambridge. United action on the part of the cities and towns interested was urged. A committee was appointed to concur with one already at work, to bring about the desired result.

HOSPITAL FOR TUBERCULOSIS IN BROOKLINE, MASS. — Dr. H. L. Chase and Dr. F. P. Denny have submitted a report relative to the establishment of a hospital for tuberculosis in Brookline. The selectmen of the town have been particularly interested in the equipment and conduct of this hospital and the report of Dr. Chase and Dr. Denny will do much toward influencing them as to the feasibility of establishing some institution of this character.

COLLECTION OF MEDICAL MEDALS. — Dr. H. R. Storer, of Newport, has presented to the Boston Medical Library Association his valuable collection of medical medals. It numbers about 2,300 examples, and is, we understand, the third largest collection in existence. It is to be known as the "D. Humphrey Storer Collection of Medical Medals." Dr. Storer's son, Dr. Malcolm Storer, is to be the curator.

NEW LABORATORY ACCOMMODATIONS FOR THE BROOKLINE, MASS., BOARD OF HEALTH. — The bacteriological laboratory, the work of which has up to this time been considerably handicapped for want of sufficient room, is about to be established in the new public building, in much more commodious quarters. The laboratory has already proved of very great service to the physicians of Brookline.

PROPOSED SANITARIUM FOR TUBERCULOSIS IN MAINE. — An organization to be known as the Maine State Sanitarium Association has recently been formed by prominent citizens of the State. The object of the association is to provide an institution in the Maine woods as a hospital for consumptives. It is proposed to request an appropriation from the next legislature to assist in carrying out the work.

PROGRESSIVE ACTION OF NEWTON, MASS., BOARD OF HEALTH. — The Health Board of Newton has asked the co-operation of the School Board in securing cultures from the throats of 1,000 pupils to determine, if possible, what percentage of well persons, who have not been exposed to diphtheria, carry bacilli in their throats.

FREE HOSPITAL BED FOR TECHNOLOGY STUDENTS. — The trustees of the Massachusetts General Hospital have established a free bed for the use of students of the Institute of Technology, Boston, in recognition of the services the Institute has rendered the hospital.

MEETING OF MEDICAL OFFICERS. — The medical officers of the Second Brigade, M. V. M., met recently at the East Armory, Boston. Numerous papers were read, chiefly relating to the exigencies of war.

A BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL. — By the will of the late Roger Wolcott $5,000 is left to the Massachusetts General Hospital.

NEW YORK.

THE HILLIARD CASE AT BELLEVUE HOSPITAL. — In the Hilliard case, in which the inquest was held on December 28th and 29th, the coroner's jury rendered a verdict to the effect that the deceased came to his death from asphyxia and fracture of the ribs inflicted by the three accused nurses, pupils of the Mills Training School at Bellevue Hospital. The conclusion of the verdict was as follows: "And we censure the authorities of said hospital for laxity of the methods of the medical service of said pavilion for the insane, which tended to bring about the death of the deceased." As a result of this finding the three men were committed to await the action of the Grand Jury, the bail being increased in each instance from $1,000 to $5,000. The reason for the alleged physical violence was stated to be the refusal of the patient to take food, and the verdict against the accused was based principally on the testimony of Thomas Minnock, who explained on the witness stand that he had feigned insanity in order to get into the pavilion for the purpose of writing some articles for a newspaper. The counsel provided by Mr. Mills for the accused did not put any witnesses on the stand, stating that the testimony for the defence would be reserved for the Criminal Court.

DISMISSAL OF NURSES AT BELLEVUE HOSPITAL. — After an investigation, Commissioner of Charities Keller has dismissed three male nurses, and suspended six others, employed in the insane and alcoholic wards of Bellevue Hospital, on the ground of brutality and neglect. The three discharged men were arrested on the charge by Coroner's Physician Donlon of having been instrumental in causing the death of Louis Hilliard, an insane patient, and were afterwards released on bail furnished by Ogden Mills, a son of the founder of the Mills Training School for Male Nurses connected with the hospital. In consequence of his investigation the commissioner has placed in charge of the wards mentioned Dr. Louis Schultz, medical inspector in the Department of Public Charities. The State Board of Charities has also taken the matter up, and instituted an inquiry.

Seventy-five Thousand Dollars to a Christian Science Church. — During the contest of the will of Miss Helen C. Brush, who died in July last, bequeathing the bulk of her property of $75,000 to the "First Church of Christ, Scientist," several Christian Science healers have made statements under oath which attracted the special attention of the Health Department and are likely to lead to prosecutions in the future. Among these are the following: That it takes a fee of $100 and a two weeks' course of training for a person to become qualified to heal; that healers never report cases of contagious disease to the department, because it is contrary to the rules of their church; and that the physician who signed the certificate of death in Miss Brush's case acknowledged having signed a certificate in a case which he never saw. This physician, whose card bears the inscription, "Charles Griffin Peace, M.D., D.D.S., C.S." (standing for Christian Science), testified that he was still a member of the Medical Society of the County of New York. He also stated that he had given up the practice of medicine since 1898, but still continued to practise dentistry.

Smallpox. — There have been very few new cases of smallpox in the last two weeks. Dr. Blauvelt, chief of the Division of Contagious Diseases of the Health Department, states that since the first case was discovered on November 5th there have been reported 84 cases of the disease in the Borough of Manhattan, 2 in Brooklyn and 5 in the Bronx, and that only 3 of them have proved fatal. No cases have occurred in the other two boroughs of the city. On December 28th there were still 61 smallpox patients remaining in the hospital on North Brother Island. Over 50,000 persons in Manhattan have been vaccinated by the inspectors of the department, and fully 80% of those had never before been vaccinated. In consequence of the general need of vaccination in the community the Board of Estimate and Apportionment has been asked to make a special appropriation for the payment of 150 additional vaccinators for the first three months of 1901, at the rate of $100 a month.

Electrical Cooking. — At the dinner at the last meeting of the Medical Association of the Greater City of New York, through the kindness of Mr. L. Le Bailly, a friend of Dr. Achilles Rose, the members had the opportunity of practically testing the efficacy of electrical cooking. By means of the Cary electric broiler steaks are done to a turn in five minutes, chops in two and a half minutes, quail in four minutes and sliced bacon in two minutes; the almost equal rapidity with which they were disposed of showed how highly the viands were appreciated.

Gift of $75,000 to New York Eye and Ear Infirmary. — Wm. C. Schermerhorn, second vice president of the New York Eye and Ear Infirmary, has presented to that institution $75,000 for the construction of a pavilion for ear patients. The gift was made in consequence of a perusal of the advance sheets of the annual reports of the infirmary, which direct attention to the urgent need of such a building. In the year past an unusual number of serious cases have presented themselves, and during the last five months 200 mastoid operations have been performed.

Formal Opening of Cornell Medical School. — The sumptuous new building of the Cornell Medical School, on First Avenue, opposite Bellevue Hospital, the gift of Col. Oliver Payne, was formally opened and dedicated on Saturday afternoon, December 29th. Addresses were made by President Schurman, of Cornell University, and Governor Roosevelt, and by Dr. Lewis A. Stimson, professor of surgery, representing the Medical Faculty; after the exercises there was a reception in charge of Prof. Wm. M. Polk, dean of the faculty.

Purchase of Plant of Flatbush Water Company. — The Board of Estimate has decided to purchase by condemnation proceedings the plant of Flatbush Water Company, of Brooklyn, valued at $100,000. This company has for some years supplied the residents of the Flatbush district with water, and its contract with the city expired on December 31st. The supply is obtained from driven wells and the system includes several miles of mains.

Hospital for U. S. Marine-Hospital Service. — It is announced that the Treasury Department has in contemplation the construction of a new three-acre island, to be connected by a bulkhead with Ellis Island, in the harbor, and on this it is purposed to build a hospital for the United States Marine-Hospital Service, to take the place of the present institution on Staten Island, which has been found too inaccessible.

Dismissal of Dr. Peter M. Wise. — On December 20th Governor Roosevelt announced that he had dismissed from office Dr. Peter M. Wise, president of the State Commission in Lunacy, on the charge of malfeasance in office. The ground given for this action is the use of his official position by Dr. Wise in the interests of certain financial companies with which he was connected.

Election of Officers, New York Academy of Medicine. — At the annual election of the New York Academy of Medicine, held December 20th, the following officers were elected: President, Dr. Robert F. Weir; Vice President, Dr. Charles L. Dana; Recording Secretary, Dr. John H. Huddleston; Corresponding Secretary, Dr. Louis J. Bishop.

Bequests of the Late Henry Villard. — By the will of the late Henry Villard, which has just been offered for probate, $50,000 each is left to Harvard and Columbia Universities, $10,000 each to the German Hospital and Dispensary and the New York Infirmary for Women and Children, and $5,000 to the Dobbs' Ferry Hospital Association.

Cigarettes and Insanity. — In the trial at White Plains, Westchester County, of young Burnz for the murder of the postmaster of Scarsdale, in

which the defence was insanity caused by excessive cigarette smaking, Dr. Carlos MacDonald, the alienist expert, recently testified that during the past thirty years he had examined 50,000 persons as to their sanity, and that he had never known of a case of insanity brought on by cigarette smoking.

TYPHOID FEVER AT SING SING. — Dr. Irvin, resident physician of Sing Sing prison, has reported to the State Board of Health that the recent outbreak of typhoid fever in that institution was due to a break in the water-supply pipe, in consequence of which the water became contaminated by local sewage.

MEETING OF MEDICO-LEGAL SOCIETY. — At the annual meeting of the Medico-Legal Society, on December 19th, Clark Bell was elected president, and Dr. Albert Bach read a paper on the "Rehabilitation of the Medical Expert."

Miscellany.

A DEATH ASSOCIATED WITH USE OF THE RÖNTGEN RAYS.

IN the *Lancet* for December 8, 1900, a case is reported of a woman of sixty-eight, who met with an accident resulting in a fracture of the left hip. For purposes of diagnosis two x-ray photographs were taken, with exposures of thirty-five and forty-five minutes respectively. These not being deemed satisfactory a third attempt was made, with an exposure of forty-five minutes. Several days after the second exposure an x-ray dermatitis developed which finally resulted in a sloughing ulcer. Several months later the patient died, not having recovered from the effects of the x-rays. The photographing was done by a non-medical, under the general direction of the physician in charge of the case. At the autopsy the wound had lost its slough, but there was little sign of repair. The heart was flabby and the blood vessels degenerated. The coroner's jury in the case returned the following unanimous verdict: "That the deceased met her death from shock and exhaustion following the accident and the effects of the Röntgen rays upon a weakened system. No blame attached to either the medical man or the photographer."

Commenting on the case the *Lancet* says: "With regard to this case it may be remarked that the fact that the friends of the deceased not having been represented by expert evidence detracts somewhat from the value of the inquiry. It was admitted that no note was made of the time of the exposure, the distance of the tube from the plate, and other details that cannot safely be left to the memory. From the evidence it is clear that a burn resulted from prolonged exposure to the focus-tube, probably from the third exposure of forty-five minutes on April 27th, as the rash appeared seven days after that date. However, the fact that the first exposures were not followed by dermatitis during the thirteen days that elapsed does not absolve those exposures from all blame. It is reasonable to assume that the degenerative changes in the body of the deceased were indirect factors in the causation of the burn just as they were in the fracture of the hip. Unfortunately, for reasons already stated, the full details of the exposures are not available. At the same time we are told of one important differing condition of experiment — namely, that the surface of the body was not protected by clothing on the third exposure, the one from which the damage in all probability resulted. No mention was made of the crucial point of the distance of the focus-tube from the skin. As regards the responsibility of a medical man who engages a non-medical man to take a Röntgen photograph the matter is not advanced by this case. The fact that the patient consents to the photography can hardly absolve the medical attendant. If the latter hands over the operation to a non-medical man it is a question how far he is relieved of responsibility. A chemist is responsible for errors in dispensing a prescription, but he is licensed to practise pharmacy, whereas the electrical or photographic worker with the rays has no such recognized and tested legal status. If the non-medical photographer had undertaken the case for the local hospital what would have been the position of the committee of that institution in the matter? On the other hand, the employment of a medical Röntgen ray expert would clearly absolve a medical man of further responsibility. Any medical operator must have hesitated to expose to the rays for forty-five minutes an old lady who had been laid up for five or six weeks with a broken hip. It seems undesirable, moreover, that female patients should be submitted to the manipulation of instrument makers and other non-medical workers with the rays."

Correspondence.

TYPHOID FEVER *VS.* APPENDICITIS.

BOSTON, December 26, 1900.

MR. EDITOR: — The wide prevalence of typhoid fever should be borne in mind in the consideration of acute abdominal emergencies which demand operation; for under a mistaken diagnosis an atypical typhoid may be operated upon as an appendicitis. If the truth were known, I believe it would appear that not a few cases of typhoid fever have been operated upon because pain and tenderness have been prominent symptoms in the early days of the attack. Cases which begin with malaise and a high temperature, and which develop pain and tenderness secondarily, should be scanned with the greatest care. I have recently seen 4 cases in 3 of which my suspicions were first aroused by an early temperature of 103° to 105°. So high a temperature in suspected appendicitis is sufficient always to excite a doubt, for even the severe cases rarely show so high a fever. When constitutional signs are the most prominent, and local the least, abdominal cases demand the most careful investigation and the most conservative treatment. Of the 4 cases 1 proved to be an acute obstruction from a congenital band, — a chronic and incomplete obstruction so aggravated during the early days of typhoid by the distention of the small intestine as to become acute and complete. The second case marked by high temperature and abdominal tenderness, proved to be a simple febricula dependent upon an injury in the foot-ball field in an overtrained and sensitive boy. The third, beginning with malaise and high temperature, presented, on the third or fourth day, a sudden excruciating abdominal pain starting in the epigastrium and becoming localized in the right iliac fossa, but without local physical signs. It proved to be a typhoid of the severest type, and is now in its third week. The fourth patient, a boy of eleven, had

been prepared for operation for a second attack of acute appendicitis. The symptoms were headache, malaise, very high temperature, with later development of general abdominal tenderness without pain. The attending physician and the surgeon had considered the possibility of typhoid, but were not convinced that appendicitis was not present. I advised against operation on the ground that it was not appendicitis, and asked that a medical man be consulted. The consultant agreed with the others that the disease was probably appendicitis, but of a type which did not at that time demand operation. I could never make myself believe that the appendix was diseased, and took with extreme reluctance the great responsibility of opposing operation. The disease proved to be a typical typhoid of unusually severe type. The tenderness lasted a number of days. The temperature has been a sustained high one. There have been several hemorrhages, and at present the child has pneumonia.

The dangers of a surgical operation performed in the course of typhoid are great, as has been shown by the excessive mortality in the surgical emergency occurring during this disease. I do not now refer to that terrible emergency of the disease, perforation of the typhoidal ulcer, but to such complications as gall-bladder and other indirect infections; to emergencies not in the least dependent upon the disease, such as strangulated hernias and other external and accidental complications. The consequence of an error in diagnosis may be extremely unfortunate for the patient, however desirable the removal of an appendix in health may be. For the surgeon there can be no greater mortification than that which he feels when a normal appendix is found among intestines showing unmistakable signs of typhoid fever. Even with the greatest care this mistake may be made. It is humiliating only when the diagnosis has been so hasty, not to say careless, that typhoid has not even been thought of.

Yours respectfully,

M. H. RICHARDSON, M.D.

KIRKES' PHYSIOLOGY.

KING'S COLLEGE, LONDON, December 7, 1900.

MR. EDITOR: My notice has been drawn to the reviews published in your issue of November 8, 1900, of the two rival editions of "Kirkes' Physiology," and I must thank you and your reviewer for the determined stand you have made in the interests of international honesty. I have also seen Dr. Warren Coleman's reply, published on November 22, 1900.

Your reviewer mentions specially the figures of blood crystals as having been "lifted" from my edition without any acknowledgment. These figures occurred in the "Handbook" before I undertook the editorship of the authorized version, and so far Dr. Warren Coleman might appear to score a point. The facts are, however, (1) that Messrs. Wood have never acquired any rights at all from the English owners and editors of the book; (2) when the work was under the charge of Mr. Morrant Baker and Dr. Vincent Harris, an edition authorized by the proprietors of the book was published by Messrs. Blakiston; (3) that Messrs. Wood have continued to publish their edition in spite of repeated remonstrances, and that their use of Mr. Baker's and Dr. Harris's names and of the materials introduced by those gentlemen is as improper as the use of materials introduced by me.

There are, however, other figures which have been pilfered from those which I have added to the book (Fig. 167 A and Fig. 340 of Wood's sixteenth American edition). The ethics of the proceeding are the same whether "lifting" has occurred in one part of the book or in another. The other statements contained in your reviewer's note are correct, and Dr. Warren Coleman has made no attempt to answer these, obviously because he is unable to deny their truth.

I remain yours faithfully,

W. D. HALLIBURTON.

METEOROLOGICAL RECORD

For the week ending December 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...16	30.40	18	23	14	92	67	80	N.	N.W.	16	9	N.	O.	
M..17	30.35	20	30	11	57	40	48	N.W.	W.	9	4	F.	C.	
T..18	30.20	30	43	17	44	64	54	S.W.	S.W.	3	13	C.	C.	
W..19	30.04	40	48	31	81	65	73	S.W.	W.	8	11	O.	C.	
T..20	29.95	39	46	32	76	71	74	S.W.	W.	12	11	C.	C.	
F..21	29.94	32	37	28	72	70	71	N.	N.	14	13	O.	O.	
S...22	30.07	36	44	27	82	43	62	N.W.	S.W.	8	8	F.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 22, 1900.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1186	347	23.35	16.43	1.26	1.85	5.31
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	463	116	23.11	13.82	—	2.16	5.18
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	194	64	23.22	16.51	2.58	3.61	2.58
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	105	31	28.57	16.38	4.76	9.52	1.90
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	55	12	27.30	14.56	1.82	3.64	3.64
Boston	560,892	193	54	22.79	14.50	1.03	2.59	7.77
Worcester	118,421	35	21	20.00	31.43	—	2.85	8.58
Fall River	104,863	37	14	21.60	13.51	2.70	5.40	2.70
Lowell	94,869	34	8	8.82	32.34	—	—	—
Cambridge	91,886	23	4	30.43	17.40	—	—	13.05
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,559	16	8	6.25	31.25	—	—	—
New Bedford	62,442	19	5	21.04	10.52	—	10.52	—
Springfield	62,059	18	3	22.24	22.24	—	11.12	5.56
Somerville	61,643	10	4	30.00	20.00	—	—	10.00
Holyoke	45,712	14	7	21.42	35.00	—	—	14.28
Brockton	40,063	9	4	44.44	11.11	—	—	11.11
Haverhill	37,175	4	—	25.00	—	—	—	25.00
Salem	35,656	10	2	50.00	10.00	—	—	10.00
Chelsea	34,072	16	4	12.50	—	—	—	6.25
Malden	33,664	5	1	0.00	—	—	—	—
Newton	33,387	8	5	25.00	—	—	—	—
Fitchburg	31,531	6	3	33.33	33.33	—	—	16.66
Taunton	31,036	7	2	14.28	57.12	—	—	—
Gloucester	26,121	2	1	50.00	—	—	—	50.00
Everett	24,336	7	3	—	42.84	—	—	—
North Adams	24,200	8	2	25.00	12.50	—	12.50	—
Quincy	23,899	5	1	20.00	—	—	—	—
Waltham	23,481	7	3	—	—	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	8	3	25.00	—	12.50	—	—
Medford	18,244	2	—	50.00	—	—	50.00	—
Newburyport	14,478	6	2	33.33	16.66	—	—	—
Melrose	12,962	4	1	—	—	—	—	—

Deaths reported 2,518; under five years of age 735; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 584, acute lung diseases 401, consumption 294, diphtheria and croup 129, typhoid fever 65, diarrheal diseases 30, scarlet fever 23, whooping cough 17, cerebrospinal meningitis 10, measles 8.

From whooping cough New York 8, Pittsburg, 3, Philadelphia and Baltimore 2 each, Boston and Worcester 1 each. From cerebrospinal meningitis New York 5, Pittsburg, Lowell, Somerville, Salem and Newton 1 each. From scarlet fever New York 10, Boston 5, Philadelphia 4, Pittsburg, New Bedford,

Brockton and Malden 1 each. From measles New York 7, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,296, for the week ending December 8th, the death rate was 17.7. Deaths reported 3,937: acute diseases of the respiratory organs (London) 400, diphtheria 98, whooping cough 91, fever 55, measles 51, scarlet fever 35, diarrhea 33.

The death rates ranged from 11.5 in Croydon to 22.1 in Hull: Birmingham 18.7, Blackburn 16.0, Bradford 15.0, Brighton 15.5, Cardiff 11.8, Derby 16.9, Gateshead 16.7, Halifax 16.6, Leeds 16.7, Liverpool 21.9, London 17.5, Manchester 20.6, Newcastle-on-Tyne 16.9, Nottingham 19.3, Portsmouth 13.6, Sheffield 21.5, Sunderland 21.2, Swansea 15.3, West Ham 14.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 29, 1900.

R. E. LEDBETTER, assistant surgeon, detached from the "Mononganela" and ordered to the "Constellation."

C. R. BURR, assistant surgeon, order of December 19th revoked; ordered to resume duties on the "Mononganela."

C. P. BRADLEY, medical director, commissioned medical director from May 31, 1900.

P. FITZSIMONS, medical director, commissioned medical director from November 19, 1900.

W. H. JONES, medical inspector, retired, died at Bethlehem, Pa., December 13, 1900.

S. S. RODMAN and J. M. BRISTER, assistant surgeons, appointed from December 14, 1900.

C. H. BARBER, surgeon, commissioned surgeon from June 7, 1900.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING DECEMBER 27, 1900.

PURVIANCE, GEORGE, surgeon. To report at Washington, D. C., for temporary duty. December 14, 1900.

SAWTELLE, H. W., surgeon. Granted leave of absence for thirty days from January 20, 1901. December 18, 1900.

WHITE, J. H., surgeon. Bureau letter of October 11, 1900, granting Surgeon White leave of absence for thirty days, amended so that said leave shall be for twelve days only. December 18, 1900.

CARRINGTON, P. M., surgeon. Granted leave of absence for thirty days on account of sickness. December 18, 1900. Relieved from duty at Washington, D. C., and directed to proceed to Fort Stanton, N. M., and assume command of the service, relieving Passed Assistant Surgeon J. O. COBB. December 18, 1900.

COBB, J. O., passed assistant surgeon. Relieved from command of service at Fort Stanton, N. M., and directed to report to medical officer in command for duty. December 20, 1900.

ROSENAU, M. J., passed assistant surgeon. Upon completion of duty at Paris, France, to rejoin station as director of Hygienic Laboratory, Washington, D. C. December 19, 1900.

MCMULLEN, JOHN, assistant surgeon. Relieved from duty at Tortugas Quarantine and directed to proceed to Savannah, Ga., Quarantine Station for temporary duty. December 15, 1900.

KORN, W. A, assistant surgeon. Granted leave of absence for seven days from December 24th. December 17, 1900.

OLSEN, E. T., junior hospital steward. Granted leave of absence for ten days from December 23d. December 7, 1900.

MCINTOSH, W. P., surgeon. To proceed to Columbus, Ga., for special temporary duty. December 23, 1900.

DECKER, C. E., assistant surgeon. Granted leave of absence for fourteen days on account of sickness. December 24, 1900.

BAHRENBURG, L. P. H., assistant surgeon. Relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Manila, P. I., and report to the chief quarantine officer for duty. December 27, 1900.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for six days from December 29th. December 24, 1900.

LINLEY, W. J., acting assistant surgeon. Granted leave of absence for thirty days. December 22, 1900.

APPOINTMENT.

A. C. FRASER, of Wisconsin, appointed acting assistant surgeon for duty at the port of Manitowoc, Wis. December 17, 1900.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the society will be held at the Medical Library, 19 Boylston Place, on Monday, January 7th, at 8.15 P. M.

Papers: Dr. Joel E. Goldthwait, "Diseases of the Spine of Non-tubercular Origin."

Dr. Elliott G. Brackett: "Attitudinal Strains of the Spine."

Dr. Robt. W. Lovett: "The Neurasthenic Spine."

Dr. John Dane: "Thoracic Pressure in Spinal Supports."

Dr. Fred'k J. Cotton: "A New Method of Application of Plaster Jackets."

Dr. J. S. Stone: "Rhachitic Spine."

Election of officers at 9 P. M.

ARTHUR K. STONE, M.D., *Secretary*, 657 Boylston Street.

RECENT DEATHS.

GEORGE G. TARBELL, M.D., M.M.S.S., died December 28th, at the age of fifty-nine years.

EDWARD A. SMITH, M.D., of New York, died on December 11th. He was born in Stonington, Conn., in 1830, and was a graduate of the Medical Department of the University of Pennsylvania. He at one time served as assistant physician in the State Insane Asylum at Worcester.

ULYSSES H. BROWN, M.D., a distinguished eye and ear specialist of Syracuse, died suddenly in New York, on December 27th, at the age of forty-eight.

ISAAC WARD FERRIS, M.D., of Mount Vernon, N. Y., died on December 25th, in the sixty-first year of his age. He was a son of the late Chancellor Ferris, of the University of the City of New York, and was a graduate of the University and of the Yale Medical School.

BOOKS AND PAMPHLETS RECEIVED.

Thirtieth Annual Report of the Central State Hospital of Virginia (Petersburg, Va.) for the Fiscal Year ending September 30, 1900.

The Treatment of Fractures. By W. L. Estes, A.M., M.D., Director and Physician, etc., St. Luke's Hospital, South Bethlehem, Pa. New York: International Journal of Surgery Co. 1900.

Sanity of Mind: A Study of its Conditions and of the Means to its Development and Preservation. By David F. Lincoln, M.D. New York: G. P. Putnam's Sons. London: The Knickerbocker Press. 1900.

Refraction and How to Refract, including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eyeglasses, etc. By James Thorington, A.M., M.D. Second edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

Comparative Physiology of the Brain and Comparative Psychology. By Jacques Loeb, M.D., Professor of Physiology in the University of Chicago. Illustrated. New York: G. P. Putnam's Sons. London: John Murray. 1900.

Therapeutics: Its Principles and Practice. By Horatio C. Wood, M.D., LL.D. Eleventh edition, remodelled and in greater part rewritten. By Horatio C. Wood, M.D., and Horatio C. Wood, Jr., M.D. Philadelphia and London: J. B. Lippincott Co. 1900.

The Medical Examination of Life Insurance and its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

A Compend of Diseases of the Skin. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polyclinic and College for Graduates in Medicine, etc. Second edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

Diseases of the Nervous System: A Textbook for Students and Practitioners of Medicine. By H. Oppenheim, M.D. Authorized translation by Edward E. Mayer, A.M., M.D. First American from the second revised and enlarged German edition. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1900.

Textbook of Histology, including the Microscopic Technic. By Dr. Philip Stöhr, Professor of Anatomy at the University of Würzburg. Third American from eighth German edition. Translated by Dr. Emma L. Bilstein. Edited with additions by Dr. Alfred Schaper. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

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Original Articles.

A SHORT ACCOUNT OF THE RECENT INTERNATIONAL MEDICAL CONGRESS IN PARIS.[1]

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In whatever I may have to say I am largely forestalled by the excellent reports of the congress published in the *Boston Medical and Surgical Journal* during August, September and October.

The recent International Medical Congress is numbered thirteen in the series of International Congresses that have been held. The first, like this last, met in Paris during an exposition year. French physicians were contemplating arrangements for the annual gathering of their National Medical Association in 1867, when it occurred to the executive committee that it might be agreeable and becoming to ask a number of foreign physicians likely to visit the exhibition to attend the sessions of the association. Forthwith, invitations were sent out and several foreign vice presidents appointed. Fully 500 gentlemen from outside of France responded to this cordial request. The meeting was such an eminent success that Dr. Pantaleoni, of Italy, suggested it should be considered the first of a series of meetings held from time to time, to be known as the International Medical Congress. The suggestion met with universal favor, and accordingly it was voted that the second congress should meet in Italy in honor of Dr. Pantaleoni's nationality, two years hence, in 1869. Rome at this time was still under papal supremacy, so Florence was selected, that there might be no embarrassment to Protestant nations. Then came the Franco-Prussian War, and we find the third meeting postponed until 1873 at Vienna, following which the fourth, fifth, sixth and seventh occurred at intervals of two years at Brussels, Geneva, Amsterdam and London, respectively. All proved interesting to a constantly increasing number of attendants, though until that of 1881, in London, the American profession had taken no signal notice of their occurrence. Nearly every one was marked by the announcement of some important step in medicine, so that a study of the proceedings of these congresses during their existence will acquaint one with the main steps in the progress of medicine through these years. I call to mind that of 1875, at Brussels, when the transmissibility of puerperal fever at last became so fully recognized that a series of resolutions were passed recommending the abandonment of large lying-in hospitals; that of 1879, when Lister, with his fresh views upon the significance of antisepsis, was the hero of the hour.

With the meeting in London in 1881 begins the real modern conception of medicine from the new etiological point of view — the importance of the exclusion of pathogenic parasitic life to the health of the individual. Each congress since has left a more or less distinct footprint in the evolution of this conception.

Following London were the meetings at three-year intervals at Copenhagen in 1884; Washington, 1887; Berlin, 1890; Rome, 1894; Moscow, 1897, and now Paris, 1900.

Of those preceding this last I have little to say; for many reasons, not all of which are wholly creditable to our American profession, the meeting in Washington in 1887 was the least satisfactory of the series, while that in Berlin in 1890 was one of the most satisfactory — all the world was there, eager, expectant, to see and to listen to the man who might be about to proclaim to all future generations the same relief in that great devastating disease of tuberculosis which Jenner a little less than a hundred years before had made possible in the great curse of his time. Koch spoke, the world hearkened, but, alas, time has not yet proven that his words were prophetic.

Of no less interest were the meetings in 1894 in Rome and 1897 in Moscow. Each denotes an era of progression, the former having for its salient feature the full recognition of the possibilities of serum therapy, while at Moscow, as has been well said, the world first awoke to an appreciation of the high state of Russian medical science.

Before adjournment in 1897, Paris was selected as the next meeting place.

Professor Lannelongue, with Dr. A. Chauffard as secretary, and Dr. Du Flocq as treasurer, and an executive board numbering some of the proudest names in French medicine today, such as Bouchard, Brouardel, Raymond and Roux, went diligently to work to inaugurate the congress of this year, that which should be destined to mark the medicine of the civilized world at the end of the nineteenth century. With what success he accomplished his purpose I shall but vainly, I fear, be able to tell you. Whatever the success, however, I am sure he would be the very first to share it with his indefatigable colleagues, especially the secretary, Dr. Chauffard, and the treasurer, Dr. Du Flocq.

Perhaps a word in regard to these three men as I saw them may not be out of place. I am sorry I have not good photographs to show you. They convey so much better impressions than mere words, but I have a newspaper print of President Lannelongue which will convey slightly, perhaps, an idea of his personality. It is almost libellous to show it; it does the man such an injustice.

Lannelongue is about sixty years old, heavily built, of florid complexion, with large, laughing, keen brown eyes, set wide apart, an attractive smile; full of dignity and composure, yet alert and vigorous, professor of surgical pathology in the Faculty of Medicine and honored with the distinction of being a member of the Institute as well as of the Academy of Medicine. One rare faculty he possesses — that possessed to such an eminent degree by the late Mr. Blaine — the faculty of remembering face and name of any individual introduced to him. This alone made him a most popular and valuable head, for his geniality and readiness to recognize even the smallest of those presented could but attract and encourage good feelings.

Chauffard is young, perhaps thirty-eight, slight, wiry, active, nervous, full of executive ability, not forgetful of the minutest details. To him, perhaps, more than to any one else, is due the perfect organization of the congress, and for his efforts he has been decorated with the insignia of the Legion of Honor.

Du Flocq, the treasurer, is also young, genial, kind, honest, thoughtful of every one, methodical to a degree, the man to whom you would trust your all.

Fortunately, no fixed rules, except of their own making, confined these men in their undertaking, and

[1] Read before the Boston Society for Medical Improvement, December 10, 1900.

they were able to organize the congress along their own lines. The first move, so far as could be seen at this distance, was the selection from each nation of the world of a physician who should become chairman of the national committee of his country, he naming this committee from the leaders of the profession. I need not tell you that Professor Osler of Baltimore was asked to fill this office in America, and that he named the presidents of the leading national associations as his committee.

As in the preceding congresses at Moscow, Rome and Berlin, the numbers responding, especially among foreigners, were very gratifying, and on Sunday, the 5th of August, as many as 6,200 representatives from thirty-four nations of the world had registered their attendance, together with some 3,000 wives, sisters and daughters, an attendance, therefore, on this day of nearly 10,000 persons. Nor is it to be wondered at: not only was it a congress at the end of a century, but it was in connection with a great international exposition of arts and sciences, and, moreover, held in Paris — Paris with its Louvre, its Seine, its Champs-Elysées, its Beaux-Arts, its Notre Dame.

The registration of this large body of people, speaking nearly all the languages of the globe, was done most expeditiously and satisfactorily. In no less a cosmopolitan city would it have been possible. Volunteer students from all nations were stationed behind tables stretched along the arcade bounding the inner court of the École Pratique. Each proclaimed his nationality by a big sign attached to the wall over his head. Each had the subscription list of that nation, and the registration blanks, invitations, tickets, etc., of each subscriber. It all went like clockwork, so careful and painstaking had been the organization.

A glance at these 6,000 names: Two thousand two hundred of them are French, 800 Russian, 600 German, 400 American (that is, from the United States), 300 Italian, 200 British, and notice 108 from Argentine Republic and 43 from Japan. The United States, therefore, stood fourth in respect to numbers, and Great Britain sixth. The latter's low figures are to be easily accounted for by considering the strained political relations of the two countries for the past several years; the Fashoda incident, the warm, ill-concealed, even outspoken sympathy of the English for Dreyfus, and their threats of boycotting the exposition in case he was not pardoned. Then, in their turn, the French caricatures of those sacred to the English hearts, and their pronounced advocacy of the Boer cause.

But why the numbers of Americans should have fallen from 657 present at the tenth congress in Berlin to 412 at the present one is hard to explain. It must be admitted that many in the United States are not believers in the usefulness of International Congresses, while many more perhaps considered that this would be an expensive and uncomfortable year to visit Paris. I am sorry to say I feel that here in New England men were influenced to remain at home by the statements of "Spectator," whose letter appeared in your JOURNAL on March 8, 1900. As I walked the streets of Paris, attended the meetings of the congress, visited the houses of the French, receiving nothing but kindness and courtesy on all hands, I often wondered who this unfortunate individual could be that his life should be cast in such unhappy lines, why perchance he did not leave the hostile shores rather than stay on only to suffer and to complain. How different his letter from those other letters written some seventy years ago by that enthusiastic, lovable young Bostonian, James Jackson, studying in Paris — letters so full of gratitude for the opportunities afforded, so full of affection for the masters with whom he worked, so full of praise of the privileges of living and enjoying Paris, knowing her language and learning from her great teachers — Louis, Andral, and Chomel. Unhappily, the officers of the French Congress saw the letter and were very much hurt, not only that such an one should have been written, but also that it should have had credence in any American town.

But who are the individuals making up these 6,000 names? I will cite but a few examples. Are they the young, the obscure, the unknown? I need not quote those of France; all the well-known men of this generation are to be found there. Germany: Virchow, von Bergmann, Ebstein, Naunyn. Italy: Golgi, Bianchi, Baccelli. Austria: Albert, Danielski, Kaposi. Great Britain: Lister, MacCormac, Dyce Duckworth, Mayo Robson, Lauder Brunton. United States: Jacobi, Janeway, Bradford, Murphy, Keen, Richardson, Weir, Warren. The leaders of medical thought the world over.

The hotel accommodations of the city proved ample, not only to care for the visiting doctors and their families, but also for the thousands of other people attending the Exposition, and prices, too, contrary to the general prediction, were not excessive. I had a very comfortable room in one of the best hotels, near the Vendome Column, for twelve francs a day ($2.40). One could scarce do better here in Boston, even in the midst of summer, and, if one chose the pensions or mere lodging houses, especially in the Latin Quarter, it is remarkable how cheaply one might live. A young friend found lodgment in the most delightful of quarters with the cousin of Victor Hugo, now a charming old gentleman of seventy, who has gathered about him and preserved nearly all of the great novelist's treasures, bric-a-brac, the table upon which he wrote, the ink stand in which he dipped his pen, even the bed in which he slept and the clothes which he wore, and yet in such surroundings and in company of such an intelligent and attractive landlord he paid but three francs a day for his room (sixty cents).

The last ten days of July had been excessively hot both in England and France, but with the advent of August came a cold rain, and throughout the remainder of the summer the weather on the continent of Europe could not have been more delightful. During the week of the congress occasional showers, fresh and cool like the April rains of New England, cleaned the streets and made the necessity of an overcoat at night imperative.

Registration began July 31st, and by noon of August 2d the majority of the members were enrolled. Across the street in the beautiful new part of the medical school each country was provided with a separate meeting place for its national committee and their compatriots. These served as the headquarters of each country where bulletins could be posted or engagements made. This little register kept in the United States room shows the names of many of the American members.

Although the work of the congress was divided

into many sections, the numerous amphitheatres of the medical school, the nearby Sorbonne, and the adjacent hospitals lent themselves most conveniently to their purposes, centralizing the sections for the most part within two or three minutes' walk.

As was admirably appropriate, the dermatologists met at the St. Louis Hospital, where the wards furnished ample resources for the demonstration of many of the most interesting skin affections, and indeed these demonstrations became an essential part of the work of that section. Likewise, the Pasteur Institute was appropriately designated for the Section of Bacteriology and Parasitology, and here Roux, Marmorek, Leveran and others were to be seen constantly in attendance.

The first official business of the congress was the reception by the President of the Republic of the national delegates. These numbered five to ten from each country, and some thirty-four countries were represented. It took place at the Elysée Palace at 10 o'clock on the morning of August 2d. Delegates were bidden to appear in full dress, wearing orders, decorations, etc. For the first time in my life I put on a dress-suit at 9 o'clock in the morning, and I must say I felt much as if I had been out over night. However, this proved one of the most interesting of the official functions of the congress. On arrival at the palace we were ushered into a very large reception room, beautifully decorated in white and gold, and hung with interesting tapestries of the Louis Quinze period. Here we found representatives of other nations gathered. Before the arrival of the President the delegates were grouped together by countries, and then these groups arranged alphabetically in a large semicircle about the room. The United States, under its French name of *Etats Unis*, stood between *Espagne* and *Grande Britagne*. The sight of this array of 200 or 250 men I shall not soon forget. They were for the most part the leaders of the profession in their respective countries, and their countenances and dignified bearing easily denoted their high positions. Many connected with the army or navy were dressed in full uniform, and all possessing decorations of any sort did not fail to wear them. President Lannelongue in the green embroidered coat of the Institute, with red sash and rapier, von Bergmann most resplendent in orders and medals, Sir Wm. MacCormac, Virchow, Reverdin, Zambaca Pacha, are but a few of those who catch one's eye. Promptly at 10 a most distinguished looking butler, if I may call him such, in powdered hair, velvet coat, silk knee breeches, and white stockings announced in a loud voice "le Président de la République." Emile Loubet entered, escorted and followed by the president, secretary and treasurer of the congress, several of his ministers and a small body guard. Thereupon, Professor Lannelongue stepped forward, presented him to the delegates in a short, formal address, to which he immediately replied, expressing his pleasure in greeting so many distinguished representatives from so many countries.

During all this time our neighbors, the Spaniards, magnificent in dress and decorations, whose presence at our very elbows we could not think of without some little degree of embarrassment, inasmuch as we could but wonder how they looked upon us, their recent conquerors, kept up an incessant noisy, excited conversation. Something had gone wrong with them, and not even President Loubet's words could silence them. Such a nation are they for talk. What must the Spanish Parliament have been during the trying days of Dewey's victory and Cervera's defeat!

After the President's general greeting, he proceeded within the circle, giving individual welcome to each state, hearing the names and shaking hands with many of the delegates. Arriving at *Etats Unis* he greeted us most warmly, congratulated us upon our country so pre-eminent in its arts and sciences, and bade us hearty welcome as representatives of one great republic to another. Dr. Warren, who happened to be standing nearest him, in a few fitting sentences, and, I am happy to say, in very good French, thanked him for his welcome. It seemed to be noticeable that there was an earnest desire, not only on the part of all the officials of the congress, but on the part of the President of the Republic as well, to give Americans a particularly cordial greeting, and make them feel at home in France.

The first general assemblage of the congress met in the afternoon of this day in the Salle des Fêtes of the exposition, a tremendous auditorium capable of holding 25,000 or 30,000 people, wonderful to look upon from a structural point of view, hexagonal in shape, with very high dome roof and immense galleries on five sides, with the stage or platform on the sixth. Here were seated the delegates in full dress and uniform, as in the morning. The congress opened with a full military band playing the "Marsellaise," and as the moving strains of this spirited national anthem filled the immense space and one looked down upon the thousands of physicians assembled from all over the civilized world, he could but feel the cold shivering of excitement and emotion creep along his spinal marrow. It was really a moment not to be missed. What matter the words of any individual whether they be heard or not? Here was an occasion when one realized perhaps for the first time what it meant to belong to this great body of workers, assembled here from all corners of the earth to learn of one another for the good of humanity. The President of the Republic was to have greeted the congress, but the recent death of the King of Italy and the consequent official state mourning did not allow him to appear on this public occasion, and one of the ministers of state performed the duty. After President Lannelongue's inaugural address, and a few words from Dr. Chauffard regarding the organization of the congress, representatives were called upon to reply for each country.

Some spoke in French, but as a rule they employed the national language of the country they represented. In the absence of Surgeon-General Sternberg, who had been detained on the Pacific Coast with duties connected with affairs in the Philippines, his official representative, Major La Garde, medical director of the army, in the full uniform of his rank, replied in a few well chosen words for the United States. He first alluded to our national admiration, respect, even reverence for the name of Pasteur, the great figure in modern medicine, a true citizen of France. Others following also touched upon the same subject, but none more gracefully than he.

The representative of Canada, Sir Wm. Hingston, received the great ovation of the day; thunders of applause greeted him as he arose, which died away only to be taken up again and again. What was its significance none of us could think; it was sug-

gested that he stood for the Roman Catholic party of Canada, and so the French of the Old Régime. But later it was said that he had been mistaken for Lord Lister, and the round upon round of applause was intended for that famous man. The mistake might well occur, for both are rather tall, distinguished looking men, with shape of head similar, both wear the same cut of beard, both are very gray, but I am not at all sure that the first explanation is not the correct one.

Following these addresses Professor Virchow, in behalf of Germany, and as the great representative of German medicine, read his paper upon "Traumatism and Infection." Still adhering to his early conceptions, he pleaded for greater attention to pure cell pathology, less for the microbic, and instanced the changes taking place in an extra-uterine fetus, where bacteria are presumably absent. The great size of the hall precluded the possibility of any but those immediately surrounding the speaker hearing his venerable words, and so, although one of the oldest and most eminent of medical scholars of the century was speaking, the audience gradually dwindled away, except those within easy reach of his voice.

On the afternoons of August 6th and 9th the second and third general assemblies were held in the large amphitheatre of the Sorbonne, and a beautiful auditorium it is, with its graceful galleries and fine mural decoration from the hands of France's own Chavannes. Large and enthusiastic audiences greeted the speakers representing the five other favored nations of the world. As I have said, Virchow spoke for Germany at the first assembly. Now followed the paper of Pavlov as representative of Russia; Baccelli, of Italy; Albert, of Austria; Burdon Sanderson, of Great Britain, and Dr. A. Jacobi, of the United States. The latter spoke in French, and was listened to with rapt attention, especially by the Europeans. To our shame it seems to me few Americans stood by our national representative at a time when he was responding to the honor conferred upon us by being invited to speak, and when he was doing such credit to our institutions and men, by telling an audience more or less ignorant of us what we had been, what we had come to be, and what was the great outlook for the future, when eyes now turned to the East should be prone to look to the setting rather than to the rising sun. No address received better attention, and none compared in the applause it evoked. That he spoke plainly, even bluntly, there is no doubt, but that he spoke truly is also beyond question. And he deserves our united thanks for the able and creditable manner in which he represented our country.

Before saying his farewell words Professor Lannelongue announced that it had been decided that the Fourteenth Congress should meet in Madrid in 1903 under the presidency of Professor Calleja, and that in behalf of the younger workers it was voted Ramon y Cajal, of Madrid, be given the Moscow prize of $1,000 for his careful work on the minute structure of the nervous system.

The work of the various sections began on Friday morning, August 3d. I can scarcely attempt even to outline the work here carried on. Each had a long programme which required nearly the whole week, even with morning and afternoon sessions, to complete. If any papers were refused surely the list presented did not show it, and in this lies the great possible criticism of this congress — possibly all general congresses. Instead of abstracts, each full paper should be submitted to committees from each section who, like editors, should sift the chaff from the wheat and allow only those of real merit to be read; but the duty is a delicate one, and probably no country is yet bold enough to undertake this reform. The whole programme included two hundred and sixty reports and more than one thousand two hundred communications. I will only speak of some of the sections I visited.

In the anatomical section important subjects, such as "Topography of the Brain," "The Ascending Tracts of the Cord," "The Formation of the Cortex," were discussed by no less authorities than Waldeyer, Van Gehuchten and His. In the sections of medical sciences the mooted questions of infection and immunity engaged much attention, and, here were to be found the leaders along this line of thought so recently deduced in logical sequence from the developments of preceding years, namely, Grawitz, Buchner, Metschnikoff, Calmette, Rodet, Widal, Chantemesse. Toxins and antitoxins found exponents in Ehrlich and Roux; alimentation in Leube, Ewald, and Le Noir; paludism in Laveran, Grassi, while Behring opened a discussion upon tuberculosis and Borrell upon the parasites of cancer. Baumgarten, Ziegler, Weigert and Marinesco spoke upon inflammation and reparation of tissues.

The discussion upon the pathogeny of gout engaged in by Dyce Duckworth, Ebstein, Le Gendre and others showed how far at variance were still our ideas upon this important subject and how much work was still at hand for the student of physiological chemistry and metabolism.

In no section was the work more thorough or more interesting than that in neurology, presided over as it was by Charcot's successor at the Salpêtrière, Professor Raymond. Here were to be seen the active workers of this intricate branch of medicine — names familiar to you all, Brissaud, Déjerine, Grasset, Marie, Hitzig, Bianchi, Marinesco, Ferrier, Leyden, Krafft-Ebing, Flechsig, and Voisin. A feature introduced at this section, and one most interesting to the members, was a daily clinical demonstration of some subject illustrated by a series of cases brought either from the Salpêtrière or the Bicêtre. The richness of these two hospitals in all forms of nervous disease warrants the statement that these demonstrations were most creditable and instructive.

Surgery, presided over by the venerable but still active Tillaux, was very largely attended, but of the character of the work done I am incompetent to speak. America, so sparingly represented in many other sections, was to be found among the surgical sciences with the names of physicians known to the world. Keen, of Philadelphia, reported his case of ligation of the abdominal aorta; Weir, of New York, suggested a new method of operating in cases of acute appendicitis, and Murphy, of Chicago, spoke upon intestinal obstruction, while Fenger, of Chicago, Young, Cullen, and Gilchrist, of Baltimore, Carl Beck, Palmer Dudley, of New York, and de Schweinitz, of Philadelphia, made themselves heard in their respective branches.

The practical work of French surgeons claimed much attention. Many of their clinics were con-

stantly full of visitors, and here in an informal way surgeons discussed cases and methods, and observed the work of their French brethren.

Particularly full was the clinic of Dr. Doyen, and at the time of my visit I found myself *vis-à-vis* with many of the most eminent and renowned surgeons of the day, watching like students the operations of this man. I almost hesitate to speak of his work. Doyen is perhaps forty years of age, strongly and muscularly built, with high, retreating forehead and deep set eyes. The newspaper cut will give you some idea of his appearance.

The story is that he is owner or part owner of one of the champagne brands, and so a man of very large means. For some years he practised in one of the provincial towns, then as his fame spread and he became more ambitious he moved to Paris, built a hospital in the new part not far from the entrance to the Bois, and there carried on his surgical work. The hospital is a model private institution, with some thirty-five or forty rooms comfortably, even elegantly, furnished, with modern plumbing, heating and lighting. His operating room is at the top of the house, and seems to be very well arranged. In the wall of the room, with door opening outward, is a beautiful sterilizer, whose contents can be reached in a second by assistant or nurse, while above is a fine clock with stop attachments, so that the length of an operation can be accurately timed. Near by are etherizing and recovery rooms, as well as library, museum, and rooms for the demonstration of surgical methods.

In his work Dr. Doyen is ambidextrous, every movement has its purpose, every action tells, but when I say to this audience that I saw him remove a cancer of the breast, clean out the axilla and sew up the wound in exactly *seven* minutes, I am sure you will agree with me that this is not surgery. Surgery, at least in these days, means so much more than mere dexterity in operating; it means deliberation, judgment, care, and especially in such cases as this, *thoroughness*.

After viewing this spectacle of race-track operating we were asked to take places in the next room, where cinematograph pictures of Dr. Doyen performing all sorts of capital operations were reeled off for our instruction, and indeed I am told that no longer is it necessary to cross the ocean to see these interesting representations, that in Chicago in one of the vitascopic exhibits, after a certain hour, ladies are invited to remove themselves, while the gentlemen are regaled with a series of Dr. Doyen's surgical pictures. For the truth of this I cannot vouch, but I know from a truthful gentleman that they are on exhibition in Buda Pesth.

Dr. Doyen is not a member of the Faculty of Medicine of Paris, but that he is treated with consideration, even if not with respect, is shown by the fact that he was allowed to present *seven* different papers in as many different sections of the congress — a résumé of all which, printed by himself, was circulated promiscuously among the thousands of visiting physicians. That he has genius there is no doubt, but that it is mechanical rather than surgical is exemplified by the large exhibition of surgical instruments which he has invented.

The other subject which attracted a great deal of attention was Tuffier's method of operating under spinal anesthesia. Indeed, if one thing rather than another marked the attention of members of this congress it was this subject, and the manner in which it has been tried throughout the world since this meeting demonstrates clearly to my mind, what I perhaps ought not to say above a whisper here in Boston, namely, that there is felt a universal need for a new anesthetic. That in the minds of many surgeons the old have their strict limitations, and a large and increasing class of cases requires something different. This feeling has been evident for some time, as the tendency more and more to local anesthesia has been witnessed. I cannot think that it is a mere fad of the hour, but rather a genuine need, which this reaching out for new means represents. Tuffier seems not to have priority in the matter, but surely he, more than any one else, has called it to the world's attention. He uses the method boldly and maintains there is little or no risk. In the two cases I saw operated upon there was no question about the profoundness of the anesthesia to pain and although one of the patients showed symptoms of collapse with vomiting and sweating, neither symptom was very urgent nor lasted very many minutes. But this subject has been so largely considered in the medical journals within the last few weeks that I will not speak of it further.

If time permits, a word or two about the entertainment of members. Here, also, the death of Italy's king somewhat interfered with the plans proposed. The first general reception in the Luxembourg Palace proved rather a failure on account of one small oversight. Melancholy Jaques would have arranged it better, for he would have remembered that men and women must have their exits and their entrances. The programme was novel and should have been most delightful, the amount of refreshments would have done for a whole army corps, so lavishly had everything been provided, but as it was a cold night people found it too dangerous to wander about the beautifully illuminated gardens, and so the rooms of the palace became overcrowded, and the fine main stairway with its double row of faultlessly uniformed cuirassiers in plumed helmets became a scene of strife between the ascending and descending throngs. This same scene of strife was more exaggerated at the narrow doorway where the in and out going masses met in full collision like the rush lines of football teams. Finally, the in team obtained advantage and pushed its way along so completely that fully a half hour elapsed before those without could gain entrance.

Many of the presidents of sections gave dinners or receptions to their members. These were delightful, as here men doing the same work met in social intercourse, learning to know the human as well as the scientific side of their colleagues or correspondents.

One of the most enjoyable of the small entertainments at which I was a guest was a luncheon at the house of Professor Lannelongue. Few people were present, and besides Madame Lannelongue only one lady, Mademoiselle Virchow, who with her father was staying with the Lannelongues. Both host and hostess were very warm hearted and genial, and the evident affection and dependency existing between Virchow and his daughter was delightful to observe. Both spoke English fluently, putting me at least at my ease. I scarcely ever hoped to meet on such friendly and intimate terms the great German professor, and I assure you I appreciated the opportunity. Although within a month of eighty years old, he was as bright,

active and interested as a youth, seemed not to know fatigue, and was as direct and forceful in his conversation, and as kind and thoughtful of the younger members present, as is possible to conceive.

In passing I must not forget to remind you that the great feature of entertainment was provided by the Exposition. Time does not permit me to speak of this, though it holds its place in any reminiscences of the congress — an exposition, a credit to the nineteenth century and to France, the like of which has never been seen nor is likely soon again to be repeated.

For the national delegates the dinner given at the Elysée Palace by the President and Madame Loubet was very enjoyable. I wish time permitted me to give you some idea of the sumptuousness and regality of a French presidential dinner. Though the State be republican, surely her ruler is surrounded by all any prince of the blood could desire. But most interesting of all, perhaps, was the President's garden party, at which not only were our members invited, but also members of other congresses then in session in Paris — the press, the students, etc. Fully 10,000 people were entertained, the Shah of Persia included. Representations of dances at various eras were given by a *corps de ballet* from the Opera, and a most delightful and interesting presentation they gave. The stage erected for the occasion under the gigantic oaks of the garden was unusually picturesque, while particularly pretty was the minuet of Louis the Fourteenth.

Of the visiting Americans who are they who enjoyed the most, and in general got the most out of this congress? Surely, I shall say without hesitation, those who understand spoken German and French — not one of such whom I met but was pleased with everything, thankful that he had come, and regretful when it was over. Does it not seem shameful that in these days of ours, when science has become so completely cosmopolitan, especially medical science, and we are so interdependent one nation of workers upon another, that any single individual should be turned out of college with degree of Bachelor of Arts or of Sciences without complete speaking as well as reading knowledge of the three great languages of the time — English, French, and German? In this respect foreign universities, particularly Russian and German, are still far ahead of ours, and to our mortification be it said.

And now you will ask, what was accomplished by this great gathering? It is hard to put one's finger upon any one thing especially. Perhaps no absolutely new discovery was promulgated, perhaps no great knowledge was individually acquired, but the inspiration each one of us received in seeing, hearing, knowing, and being associated with our fellow physicians the world over, many of whose names will live forever in the history of medicine, was profound, and can but serve to stimulate us to a loftier desire to accomplish something useful in our chosen field, and to a further satisfaction in belonging to that noble army of workers whose only desired reward is that they may live to further the ends of civilization by relieving to some extent the ills of mankind.

It seems small and provincial to decry the usefulness of these International Medical Congresses, when the very leaders of our profession have not only commended them in words, but have lent their enthusiastic support by constant attendance and active participation in the proceedings. The great medical triumvirate of the second half of the nineteenth century have been among the most ardent and vigorous champions of these gatherings — Pasteur, Lister, Virchow. They were present at the first, have been seen at many another, and two of them, at least, were still able to gallantly receive the homage of their fellows at this last meeting. The twentieth century now opens before us. Happy, indeed, if it produces three such men!

THE RADICAL TREATMENT OF LACHRYMAL DISEASES.[1]

BY WALTER B. LANCASTER, M.D., BOSTON.

THE great majority of cases of epiphora are amenable to the usual conservative treatment which consists of astringent and antiseptic collyria, syringing and probing, and occasional treatment of the nasal cavities. In spite of a judicious selection and skilful application of these methods there remain a considerable number of cases which are not relieved. To this class must be added those cases which might probably be cured, but cannot afford the time and expense of two to twelve months' treatment. A third class comprises those cases on which an operation is necessary, for example, for the extraction of cataract, which would not be safe so long as there is a focus of infection like the lachrymal sac communicating with the conjunctival sac.

In these three groups are comprised the cases for which something more radical must be done, since the prevalent methods are either frank failures or impracticable of application. I repeat that these cases are not rare and unusual, and that the disease is not only very annoying but a constant menace, threatening to cause ulceration of the cornea as the result of some slight abrasion which becomes infected from the discharge, or to cause phlegmonous inflammation as the result of infection of the tissue about the lachrymal sac. Any method of treatment which promises a quick and sure relief from such a condition is certainly worthy of attention.

Such a method, it is claimed, is to be found in extirpation of the lachrymal sac and gland, one or both as may be indicated. The surprising thing is that the operation has not become more common. Described as long ago as 1748, and, indeed, practised by the ancients, it has been practised or suggested by different writers with increasing frequency during the last fifty years, but has never become the fashion in this country. In 1881 40 cases of extirpation of the sac, operated on by Graefe, were reported; in 1889, 25 cases of extirpation of the gland by De Wecker. Since then an average of one to three reports have appeared every year on either sac or gland, nearly all favorable, almost all by European writers. Lawford is the only English, and Holmes, of Cincinnati, the chief American writer whom I have seen. In this vicinity the removal of the lachrymal sac by caustics or dissection, or both, has been practised at long intervals, the removal of the sac and gland apparently not at all. Hence I was inclined to assume that so obvious a method of treatment must have some decided drawbacks, or it would have gained greater vogue. The prejudice against it appears to have been either theoretical, based on insufficient knowledge of physiology,

[1] Read before the Boston Society for Medical Improvement, December 10, 1900.

which led men to say, "Remove the sac and close the duct and what becomes of the tears? Of course they run over! Remove the gland and what becomes of the cornea? Of course it dries up!" Or the objection has been that the operation was difficult, as most of the writers on the subject state. For example, Holmes says: "I do not consider the extirpation of the lachrymal sac and gland an easy operation." Czermak advises having two extra assistants who shall have nothing to do but hand sponges to the first assistant, and in general implies that the operation is somewhat formidable. Others take a similar view. A third possible explanation may be that the operation was not new, so that when it has been suggested the reply has been, "Oh, that has been tried before and given up." If it had been really new probably plenty would have been found to rush to try it, and of course report favorably.

With the sentiment rather strongly against the operation I waited for a fairly desperate case before venturing to try it. Such a case was encountered in a woman with an absolutely impermeable nasal duct and a lachrymal sac distended to the size of a small lemon by the long duration of the disease. It was filled with mucopus, which was infected with ozena, and which could be expressed in enormous quantities into the conjunctival sac at any time. Appearance and odor were disgusting, and the patient was anxious for any operation to gain quick relief. She lived in the Provinces, and could not waste time over treatment. The result of dissecting out the sac was so entirely satisfactory, and the patient was so grateful, that I tried it on other cases, and have been more and more favorably impressed as cases presenting possibilities of various complications have resulted favorably.

Given a case on which a radical operation is needed, which shall we advise? Removal of sac or gland or both? Removal of the sac takes away the source of irritation, and not only does away with the disease of the sac and its dangers, but diminishes materially the flow of tears; for the secretion of tears is a reflex affair increased by any irritation of conjunctiva as well as by other causes, for example, by irritation of the nose or retina and by emotion. The overflow of the contents of the lachrymal sac into the eye keeps up a chronic conjunctivitis which excites an excess in the supply of tears. Experiments on guinea pigs indicate that the extirpation of the *normal* sac is followed by a diminution, not only of the activity, but also of the size of the lachrymal gland, apparently by a compensatory atrophy. Be that as it may, there is no doubt that removal of the *diseased* lachrymal sac is followed by diminished flow of tears, especially after any conjunctivitis which may have existed is cured. If the patient is exposed to irritation, however, as in cold, windy weather out of doors, there is a considerable surplus which fills the conjunctival sac and causes annoyance. Nevertheless, since the condition is so much improved, the majority of patients are well pleased. But if either the surgeon or the patient is critical he deems the result a partial success only, in many cases. For this reason the second step was suggested of removing the lachrymal gland.

The moisture of the conjunctival sac comes from the mucous membrane of the conjunctiva from the group of small glands called accessory, or palpebral, or inferior, and from the much larger primary or superior lachrymal gland. The accessory or smaller glands may be reached through the conjunctiva, and many have limited their operation to the removal of these. The result is uncertain because the main effect depends, not on the removal of the accessory glands, themselves, which would be slight if it were possible to remove them alone, but on the damage done to the ducts of the large gland, which are numerous and pass through or among the smaller glands. Even the removal of the larger gland causes surprisingly little diminution in the apparent moisture of the conjunctival sac. It is only when the eye is exposed to stimulus that the difference is usually apparent, and then the diminution is relative. There is never an absolute dryness by any means. Our aim, I take it, should be to produce a condition where under ordinary stimulus no excess of moisture is present, and where, under any greater stimulus which the patient from his occupation is likely to encounter often, there is such slight overfilling of the eye as to require only occasional wiping. Since the diminution required is a relative one, there must be a difference of opinion between different operators as to how great a diminution each will call satisfactory. My experience has not been sufficient to make me dogmatic on this point. My present inclination is toward removing both sac and gland, and not only the large gland, but the greater part of the accessory as well.

There are some cases where removal of the gland without the removal of the sac seems to promise relief, and if so, is to be preferred. I mean those cases in which there is no obstruction to the lachrymal passage either to a probe of fair size or to water from a syringe, and yet the epiphora is great. Whether removal of the lachrymal glands would remedy this I cannot say from experience, for the only cases in which I have suggested it have not so far been operated. Favorable results are reported by De Wecker and others.

What are the dangers or disadvantages of the radical treatment? These may be divided into direct and indirect. Under direct results we must include the possibility of not obtaining primary healing of the wound, which might entail prolonged treatment with more or less disfiguring scar. Disfigurement might result from faulty technique. Should infection extend to the orbit the consequences of orbital abscess must be faced. If orbital hemorrhage of sufficient extent to cause blindness by injuring the optic nerve has followed strabismus operations, such a result might conceivably occur after extirpation of the lachrymal gland. The possibility of causing ptosis by damaging the levator in extirpating the gland has been suggested. As far as I know, none of these possibilities has been realized with the exception of the first. Some operators have failed to get primary union. In case this occurs after operating on the sac, and part of the mucous membrane has been left behind, the epithelium proliferates and an irregular suppurating cavity is formed which leaves the patient in nearly the same condition as before. Ectropion is reported as a result of faulty methods.

As an indirect result of an unfavorable character there is the possibility of excessive dryness after removal of the lachrymal glands. This is conceivable perhaps, but has never occurred as far as I have been able to learn.[2] There is also the possibility of injur-

[2] Holmes has reported 2 cases of temporal dryness which passed off in a few days.

ing the cornea during the operation by lack of care. It has been advised to protect the eye by a strip of plaster to keep the lids closed during the operation. In case an eye deprived of its main supply of irrigating fluid became infected, for example, in case of purulent conjunctivitis or keratitis, it seems likely that the lack of irrigation would put the eye at a decided disadvantage and necessitate most frequent artificial irrigation to take the place of the natural. On the other hand the removal of the sac which is a focus of infection renders such a keratitis or conjunctivitis less likely to occur. All these complications, including suppuration of the wound, are on the whole rather remote possibilities when proper technique is observed.

I know of but one instance of serious complication following the operation of removal of the lachrymal sac and gland. That was reported last spring by Veasey, and it seems clear that the keratitis which occurred was of an unusual type, and not to be regarded as a direct result of the operation *per se*. There was recovery with normal vision.

Since my object is to call attention to a method of treatment much neglected in this vicinity, I shall say nothing about the technique of the operation, but show some cases on which I have operated.

CASE I. This gentleman is a private patient, but was so well pleased with the result of the removal of his lachrymal sac that he is willing to be shown. He was probed more or less for six years, and had several lachrymal abscesses, with pretty constant epiphora between times. In removing the sac I excised the scars of the old abscesses and now, as you see, the cicatrix is practically invisible. He has some epiphora when the eye is exposed to irritation, for the gland was not removed. He is planning to have that done later. I advised waiting longer to see if removal of the sac alone would suffice.

CASE II. Removal of both sac and gland. This woman had epiphora with mucopurulent, bad-smelling discharge four years. She had abscesses every spring and fall. Her condition interfered seriously with her occupation as a domestic servant. The eye was "always running over." Now she states that once or twice a day it needs wiping, "sometimes it doesn't run at all." This case was operated less than two months ago, so that the scars have not yet disappeared. The first case has been done eight months. Both were out in five days.

These 2 are fair samples of the result in the other cases I have done, with one exception, which I will show after showing 3 recent cases to illustrate the immediate result — the amount of reaction — following the operation.

CASE III. This man has been treated in Paris and in Philadelphia by the usual methods. Result, O. S., impermeable stricture. O. D., probe $1\frac{1}{2}$ millimetres in diameter passes with little difficulty; sacs not enlarged, epiphora O. U. Sac and gland were removed on left side. Removal of gland alone advised on right side. It is only three and one-half weeks since the operation, and there are still plain traces of the ecchymosis and swelling and by palpation the induration about the buried skin sutures can be felt. The temporary ptosis which follows the operation as a result of swelling of the lid has not yet entirely disappeared. This patient was discharged on the fifth day, to come later on for operation on right eye.

CASE IV. This colored man has had long and serious trouble with his lachrymal drainage, his frontal and other accessory sinuses. He broke his nose thirty years ago at the age of six. When eleven years old he had an extensive lachrymal abscess, O. S., followed by prolonged suppuration, probably from caries. He found one day that he could blow out into his eye when he blew his nose. He says the doctors had failed to stop the discharge, but by practising this blowing he soon healed it up himself. It stopped discharging into the conjunctival sac, but the discharge into the nose still exists on both sides, though it has been much relieved recently by removing the anterior end of the middle turbinate, securing better drainage. As you see, his eyes are very wide apart, nearly 50% more than the average. This is the result of the tremendous thickening of the base of the nose from the formation of new bone which has gone on for so many years. When the lachrymal sac was removed the nasal duct was found to pass, not behind the lower inner margin of the orbit, but to enter the bone an inch below the margin of the orbit on the anterior surface of the superior maxilla. The whole sac was subcutaneous.

This case was operated on only ten days ago, and you can see that, as is usually the case, the chief reaction from the operation is an ecchymosis of skin and conjunctiva, and a slight swelling of the loose areolar tissue of the upper lid which causes a temporary ptosis of variable amount. You can feel the buried skin sutures.

CASE V. The last case I have to show is the least successful one I have done. This girl was treated by probing steadily for over a year. She dreaded it and it wore on her health. She fainted on more than one occasion when the eye was probed; once she was unconscious for over an hour, she says. Both small and large probes were tried.

The sac was removed with difficulty. It was the second case I had done and I did not do it as neatly as I ought. The scar is less conspicuous than the scars of her lachrymal abscesses which were excised, but there is a slight tendency to cicatricial ectropion, though not enough to expose the conjunctiva. If you look carefully you will see that the lower lid at its inner third does not rest against the eyeball as closely as it should. This makes an opportunity for mucus to collect. There is considerable chronic conjunctivitis which supplies the mucus. If the conjunctivitis were faithfully treated this condition would be relieved. The cause of the sagging of the lid is probably damage done to the orbicularis at the time of the operation plus slight cicatricial contraction. Six months ago this could be easily seen and therefore the case was not classed as a success. It is steadily diminishing and today is hardly noticeable. The patient and her family regard it as a success. Being relieved from her previous condition she has neglected to treat the conjunctivitis. I have shown it that your impression may be a fair one, not founded on selected cases.

I wish to emphasize one more point. You will find if you interrogate these 5 patients (and the same is true of all the others I have operated on, some half dozen in number) that as far as they themselves are concerned they are sure that they are better. The evident sincerity and the emphasis with which they state this, and stick to it in spite of cross-ques-

tioning, constitute an unanswerable argument in favor of the operation.

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AN OPERATION FOR CATARACT.[1]

BY EDWARD L. PARKS, M.D., BOSTON.

ON the 14th of December, 1892, an Italian woman, thirty-five years old, was brought to my office by her brother. As she was nearly blind, she was led to a chair by my table. When asked if she could see me sitting before her, she replied that she could see only an indistinct form. I handed her my watch and asked her to tell me the time. With her right eye turned inward, the watch held closely to it on the other side of her nose, after a few minutes' study, she told me the time correctly.

A careful examination of both eyes was made. The right eye was undeveloped. In the left eye perception and projection of light were good. I diagnosticated in the left eye a capsulocretaceous cataract. With Leiter's electric light I was unable to penetrate it or to discover how large a proportion was capsular and how large cretaceous.

I talked to her substantially as follows: "It is a pity that a woman of your age should be blind. I will have nothing whatever to do with your right eye. I can do an operation on your left eye which will let in light, but I cannot promise that you will see. I will operate if you will give me authority to stop at any time and abandon the case, or to go on, as I choose."

Some days later her brother reported that she had liked the way I talked, and would like to have me operate immediately after Christmas. While thinking about the case, I received a specimen copy of a medical journal from Nashville, the leading article of which was by Landolt, of Paris, in whom I have the greatest confidence. His article was a discussion of the proper time to operate; but one of his conclusions was that you may operate at any time, provided you make a sufficiently large cut to remove the cataract. I determined to make a sufficiently large cut. At the same time I read the valuable contribution to "The American System of Surgery," by Thomson, of Philadelphia, and from it decided that the old-fashioned flap operation was best suited to this case.

At her home in Cambridge, assisted by her brother, who was not a medical man, I operated. She was laid upon an ironing board which rested upon two tables. I made a very large flap (*Lappenschnitt* of the Germans) and a large iridectomy. The anterior chamber immediately filled with blood, and, having told her that it would disappear in about a week, I left her.

The wound healed very quickly, but it was fully a month before the blood was absorbed. Thirty-seven days after the first operation, I did the second. Another large cut was made near the margin of the corner inwards. Fluid vitreous escaped. The cataract was found to be more capsular than cretaceous. The capsule was tense, like a tightly stretched drumhead, and it parted readily, as if by magic, at the touch of the cystotome, leaving a clear, round pupil.

Forty-four hours after the operation the eye was opened and seen with dim light. The seventh day eye quiet. The eighth day cut perfectly healed. The seventeenth day saw well. To make a long story short, there was a steady improvement in the sight from this time onward.

The first operation was done December 26th, the second the 1st of February. April 8th, vision was $\frac{1}{10}$. May 6th, ordered plus 10 D. for near work. June 29th, with plus $5\frac{1}{2}$ D., vision equalled $\frac{2}{10}$.

In the summer of 1899 I met her in a bicycle suit. I asked her if she rode the bicycle. She said that she did, with her husband or her brother to accompany her. As she had ridden through Boylston Street in the afternoon, when most of the heavy teaming is done, she must have felt pretty confident.

February 14, 1900. Now without glass reads the newspapers. Vision $\frac{2}{10}$. She prefers 4 to $5\frac{1}{2}$ D. for distance.

She said that she "had consulted all the great specialists in Europe, and they all said that she would become totally blind and advised her to let it alone." At the time I saw her, her relatives in Italy were writing to her not to let any doctor touch her eyes.

[1] Read before the Boston Society for Medical Improvement, December 10, 1900.

REMARKS UPON SPINAL COCAINIZATION SUGGESTED BY CASES SEEN AT TUFFIER'S CLINIC IN PARIS, AUGUST, 1900.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

AT M. Tuffier's clinic at 10 A.M., one day in August, 1900, fifteen or twenty representative surgeons were present, among whom were Warren, Weir, Dennis, Murphy, Cushing, Mayo, Ochsner, Laplace and other Americans. The first patient was a woman of middle age, with a large abdominal tumor. She was seated upon the operating table, bending forward. The skin over the lumbar region was sterilized by scrubbing with soap and water, and later with an antiseptic, the nature of which I do not remember. A small, hollow needle about 3 inches in length was next inserted carefully into the spinal canal through a space to the right of the lumbar spine. The needle was slowly thrust in until thin fluid, slightly tinged with blood, escaped. The syringe, a small one, was then attached to the needle and the solution of cocaine was slowly introduced under gentle pressure. The place of introducing the needle, the amount and strength of the solution, are immaterial. I do not recall exactly these points, which, for purposes of this communication, are, as I say, unessential. The immediate effect of the procedure was not noticeable. There was no outcry and no visible effect upon the patient. She was at once placed recumbent and her abdomen sterilized. In the meantime M. Tuffier prepared himself. At the end of about ten minutes — perhaps less — with the patient in the horizontal position, two large ovarian cysts were removed, and the incision closed. At this time I had an opportunity of examining the pulse. It was barely perceptible; its rate was between

60 and 70. The face was pale, the expression anxious. During the whole operation there was no outcry, no struggling, no restlessness. In answer to repeated questions there was the invariable reply that there was no pain whatever. The operation lasted about twenty minutes and was skilfully performed. As a demonstration of complete anesthesia it was a brilliant success. As a whole, the operation and the operator impressed me — and I think, all present — most favorably. Nothing could be more satisfactory than this demonstration of the efficacy of the method of anesthesia.

The second patient was a woman of from thirty to thirty-five with a tumor of the left kidney. Cocaine was injected as in the previous case, with the same success. The patient said that she felt paralyzed. The operation was much more difficult than the other, but was brilliantly accomplished. The patient repeatedly answered that she felt no pain. She was, as I remember it, nauseated at or before the close of the operation. This was said to be a not unusual occurrence. The pulse was extremely feeble, but not accelerated. The face was pale, the expression anxious. M. Tuffier said that it was not unusual for the temperature to rise several degrees after the operation, but that it quickly subsided.

The impression made upon me at the time was great. The method of administration was quick and sure. The spinal canal was at once entered without greater suffering than would naturally be caused by the deep insertion of a small needle. There was no hemorrhage, or not more than enough to redden slightly the cerebrospinal fluid. The rapidity and efficiency of the anesthesia were remarkable. The great abdominal operations were admirably borne; and yet the whole impression was distinctly unfavorable to this method of anesthesia. The patients appeared in actual danger. The facial expression, the pallor, the pulse, were not unlike those of a patient in deep shock. Such an appearance I have seen, and would perhaps expect after the removal of a renal tumor filling the left side of the abdomen, however mild and successful the anesthetic. I should not expect it after the removal of uncomplicated ovarian cysts under ether anesthesia. The condition would indicate the hypodermic or the intravenous infusion of normal salt solution, or at least of brisk stimulation and artificial heat.

On the other hand, the appearance of these patients I have seen in simple faintness, not resulting necessarily from pain, but from mental shock, or even from the sight of blood. The pulse and expression may have been owing simply to the realization and horror of what was going on.

The advantages of spinal over general anesthesia, however great it may be under certain circumstances, cannot be demonstrated except by years of observation and by thousands of experiments. I do not feel at all convinced that this method is without serious dangers. Time alone will show what and how great these dangers are. There are, it seems to me, definite indications for the adoption of the method — indications which will permit its adoption by even the most conservative. This limited field may, if increased knowledge proves safety, gradually become widened.

From the anatomical point of view, however, it is inconceivable that the introduction of the needle into the spinal canal can be without danger, especially if the method is practised by every one. I recall the great plexuses of veins which surround the vertebræ and the dura mater of the cord, as I have demonstrated them many times by solidifying injections. The cauda equina, too, cannot but be liable to puncture or other injury by the introduction of the needle. Indeed, one of the Americans present told me that a patient of his suffered for several months from paralysis of the bladder after this method of anesthesia.

The extent and gravity of the danger can be known only by repeated use. Judging from the occasional effects upon the heart produced by subcutaneous injections of cocaine, there must be some danger at least of cardiac depression when the solution is intradural. The dangers from the subcutaneous use of cocaine are apparently slight, however. I have seen but 1 case in which there was cause for the least anxiety. The patient received a urethral injection of 4% solution of cocaine preparatory to the introduction of a sound. He became suddenly collapsed; the pulse was feeble, the face pale, the respiration sighing. His general appearance was not unlike that of M. Tuffier's patient. Under stimulation the disagreeable symptoms disappeared.

Finally, there is the danger of introducing sepsis into the spinal canal through the needle. In skilled hands this danger is so slight, however, that I should not object to spinal cocainization on such grounds. The chief objection, after all, lies in the fact that a drug, the dangers of which are not fully known, is introduced into the spinal canal, whence it cannot possibly be removed, and where it must be left to work out its peculiar effects, however beneficial or however injurious these effects may be.

A feature of general anesthesia which is too little appreciated — which is, indeed, often forgotten, but which is one of its chief advantages — is that blessed oblivion which envelops the patient from the beginning to the end of the operation. He loses consciousness in his own bed; he wakes there; he escapes all those horrors of the operation which the imagination can depict and fear inspire.

Clinical Department.

THE PURULENT RHINITIS OF CHILDREN AS A SOURCE OF INFECTION IN CERVICAL ADENITIS.[1]

BY CAROLUS M. COBB, M.D., BOSTON, MASS.

MARY E. B., age five years; was brought to my clinic at the Lynn Hospital July 13, 1900, with enlarged glands on both sides of the neck, just below the angle of the jaw. The mother said that she had noticed the enlargement for about ten days and immediately following an acute coryza. The family history was good, none of the near relatives having had tuberculosis in any form. The throat was free from inflammation, and the tonsils were not enlarged or diseased, but the mucous membrane of the nasal chambers was covered with a dried mucopurulent secretion.

The history of the case is as follows: The child was free from disease of the upper respiratory tract

[1] Read before the Essex South Branch of the Massachusetts Medical Society, December 21, 1900.

for the first two years of her life. At the age of two years she had diphtheria, and, as the mother expressed it, she had had trouble with her throat and nose ever since. I saw the child when she was four, and she then had enlarged tonsils, adenoids and the purulent rhinitis of children. I removed the tonsils and adenoids. The operation was done under ether and was thorough. Following the operation the breathing was very much relieved, but the purulent discharge from the nose did not entirely cease, although it was much less.

To sum up the history of the case, a child without any history of previous trouble with the nose or throat has diphtheria at the age of two years, and has a purulent discharge from the nose following this attack; two years later enlarged tonsils and adenoids are removed, and one year after the operation she still has a purulent discharge from the nose and a cervical adenitis following an acute coryza.

I have selected this case because it is typical of a class of cases which the general practitioner sees every week of his professional life. We are all familiar with the open-mouthed, pale, partially deaf, inattentive and mentally backward child, with half-opened eyes and an undeveloped face, and thanks to Wilhelm Meyer these children are no longer allowed to reach adult life handicapped by the effects of adenoid vegetations. That these growths may be the result of an infective disease in the nose or throat there can be no doubt, and it is equally true that the obstruction which they cause may tend to prolong a catarrhal condition in the nose. It is very probable that adenoid vegetations may be the source of infection in many cases of cervical adenitis, but it is not our purpose to discuss adenoid vegetations. That ground has been thoroughly worked out in the past, but in spite of the number of papers which have been written and the opinions which have been expressed, I still believe that there is something new to be said about the origin and effects of adenoids. Of late the tonsils have been thoroughly investigated as portals of infection through which cervical adenitis might originate, and the fact has been firmly established that many cases do originate in this way, but compared to the whole number of cases those caused by tonsillar infection are only a small percentage. There can be no doubt but that every case of adenitis in the cervical region is as truly the result of infection as adenitis in any other part of the body. Every physician today looks for the source of infection in each case where he finds enlarged glands, that is, he assumes at once that the adenitis is a symptom and not the primary disease, and while the inflamed gland may require attention, he directs his chief efforts to the cure of the primary disease. This is the rational and truly scientific method adopted in dealing with adenitis in every part of the body except in the neck.

It would be interesting to know how many operations for the removal or evacuation of enlarged or broken down cervical glands are done each year in this State alone. These operations are done with hardly any attempt to find the source of infection. If the patient has enlarged tonsils or adenoids these are removed, but the effort ends there, and the subsequent treatment of the adenitis is in direct opposition to modern surgical teaching. The plan of treatment usually followed in dealing with cervical adenitis is the merest empiricism. The patient is given iron and cod-liver oil, because it is evident that he is suffering from sepsis, and various kinds of ointment are rubbed into the skin, and finally surgical intervention. Is it any wonder that these cases are protracted? But it may be contended that many of these cases recover with the treatment adopted or by the aid of surgery; this is undoubtedly true, but, on the other hand, it is equally true that many of them run a protracted course even after surgical intervention, and it may well be questioned whether the final healing of the adenitis is due to the treatment directed to the glands or to the spontaneous healing of the source of infection. I do not wish to say anything that can in any way be construed as speaking against operations on these glands, because these operations are often necessary, not only for the health of the patient but for cosmetic purposes as well, but I do wish to enter an earnest plea for the treatment of these cases on the same lines that govern the treatment of adenitis in other parts of the body. The operation will, if thoroughly done, relieve the patient from the danger arising from the glands already involved, but it will not prevent the involvement of other glands unless the source of infection is found and healed. The source of infection which causes cervical adenitis is very probably in close proximity to the glands involved, that is, the mouth, throat, nose or ear. There is, however, a small percentage of cases which are caused by general systemic infection, although this percentage is not so large as is generally supposed.

When we come to consider the sources of infection in cervical adenitis, we are met with the generally accepted belief that these cases are practically all due to tubercular infection, and the meaningless statement that the child is strumous or scrofulous. The words struma and scrofula have come to occupy the same place in our conversation with the friends of the patient that was formerly occupied by "congestion of the portal circulation," which the late Oliver Wendell Holmes wished had not passed out of use, because "they sounded so well, meant so little, and were so satisfying to the patient," and while these words may still have a limited use for this purpose, it will be as well for accuracy of statement in medicine when they pass out of use altogether. If we mean tubercular infection, why not say so, and if we mean something else, why not say that as well? There is no evidence that any considerable proportion of these cases of cervical adenitis is due to tubercular infection. If they are due to tubercular infection, it must occur in one of two ways, either as a general systemic infection or as a local infection from the parts immediately surrounding the neck. If due to systemic infection it would naturally follow that we should find manifestations of the disease in other parts of the body, and if due to local infection we should find the original lesion, or the scar tissue, the result of the original lesion, at the point of entrance of the infection. From the well-known tenacity with which tubercle bacilli persist in the tissues which they have once invaded, we might reasonably expect to find diseased tissue at the point of entrance, and this is what is actually found in many cases of diseased tonsils.

I do not intend at this time to discuss the whole subject of cervical adenitis, but I do wish, in this connection, to call your attention to the purulent or muco-

purulent diseases of the nasal cavities as a possible source of infection. Perhaps this can be done in no better way than to analyze the course and symptoms of the case which I have given. The child was free from catarrhal disease of the upper respiratory tract for the first two years of her life; at least the mother, a very intelligent woman, says that she never noticed any trouble of that kind; then she had diphtheria, and has had so-called catarrhal disease of the nose and throat ever since. I saw her when she was four years old and she then had enlarged tonsils, adenoids and purulent rhinitis of children. I cleared the throat and the breathing was much relieved, but the purulent rhinitis continued, although it was much less. One year later she returns with an acute cervical adenitis following an acute coryza. In this case we have a purulent rhinitis as a direct sequel of the attack of diphtheria, and we have therefore two questions for solution: (1) What is the source of the purulent discharge from the nose, and (2) what causal relation, if any, does the attack of diphtheria bear to this discharge? In answer to the first question it may be well to make the statement that a chronic nasal discharge, with a few exceptions which I will give later, always has its source in the nasal accessory sinuses. The exceptions to this statement are the cases of foreign bodies or of dead bone, which is essentially a foreign body, in the nose, and syphilitic and tubercular disease. The foreign bodies produce a profuse, purulent discharge, while the syphilitic and tubercular diseases produce a slight amount of discharge *per se*. I am well aware that syphilis is credited with causing a nasal discharge in a large number of cases, but if we take the trouble to differentiate the discharge caused by the actual syphilitic disease from that caused by the results of this disease within the nasal chambers, we shall be in a much better position to treat these patients intelligently. These results act as a predisposing cause of a nasal discharge in precisely the same way as obstruction to drainage from the cells produced by other causes acts, or a sequestrum may be left after a destructive syphilitic inflammation of the bone, which acts simply as a foreign body. It acquires no specific qualities on account of its origin and its complete removal has the same influence over the discharge that the removal of any foreign body has.

I will not go fully into a consideration of the predisposing and exciting causes of sinus disease as I have done it elsewhere very lately.[2] What causal relation does diphtheria bear to this discharge? The relation of diphtheria of the throat or nose to sinus disease presents itself in one of two ways; either there may be a true diphtheritic membrane formed in the accessory sinuses, especially in the antrum of Highmore during the attack of diphtheria (Weichselbaum, E. Frankel, Dmochowsky), or the sinuses may be intensely inflamed during the course of the diphtheria without true diphtheritic infection, the inflammation being due to a secondary infection by other bacteria (Zuckerkandl). Here, then is the relation of the diphtheritic attack to the subsequent purulent discharge. In this case the attack of diphtheria was the exciting cause, but in other cases it may be acute coryza, influenza, croupous pneumonia, scarlet fever, measles, facial erysipelas, typhoid fever, cerebrospinal meningitis, foreign bodies in the nose, etc., in fact, any way in which infection may reach the sinuses. Infection having taken place and the discharge once established, absorption will sooner or later occur, and the lymphatics of the nose being directly connected with those of the neck, a cervical adenitis may result at any time, and unless the purulent rhinitis is cured the cervical adenitis will run a protracted course. The purulent discharge from the nose may not cause a cervical adenitis for some time, because the retained secretion is very largely contained in bony cavities, but it eventually denudes the mucous membrane over which it flows and then some condition, as an acute cold, blocks the flow of the purulent discharge and absorption of the retained secretion takes place. If the source of the infection is in the nose, as it evidently was in this case, as there was no inflammation of the throat and no tonsils to be seen, and no pockets around the throat to retain the products of inflammation and no evidence of tuberculosis, then the importance of treating the nasal disease does not need to be insisted upon. It seems hardly necessary to add that so long as the source of infection remains unhealed that it is hardly reasonable to hope to cure the adenitis. It is very true that the infected glands can be removed and the process stopped in them, but this does not prevent others from becoming involved, and one would hardly care to remove the whole lymphatic system of the neck to prevent recurrence. It seems more in the line of modern surgical teaching to first find the source of infection, and to make the healing of this the objective point of the treatment. If this can be done, the treatment of cervical adenitis will be much easier, and its course much shortened, and while the removal of hopelessly involved or broken down glands will still be necessary, we shall be able to prevent the involvement of other glands.

[2] Archives of Otology, vol. xxix, Nos. 2 and 3.

Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from Vol. CXLIII, No. 25, p. 635.)

THE DOCTOR'S DUTIES TO PREGNANT WOMEN BEFORE LABOR.

DR. AYERS[4] says women should be instructed to engage their doctors as soon as they consider themselves pregnant. Such patients should then be instructed, first, in the cardinal rules of gestation; frequent but never prolonged outdoor exercise and brief rests in the recumbent position, with low-heeled shoes and shoulder-strap support to the skirts, corsets being laid aside; a sensible diet that avoids an excess of meats; regulation of the bowels and steadiness in the perspiratory function. The chief cause of unintentional abortion in healthy pregnants is prolonged or overexertion on the feet, constipation, and perhaps coition. The nausea of pregnancy, so usual in primiparæ, aids in many cases by its restraining influence the conservation of gestation. Young wives are prone to play bravado during the unshowable first months of pregnancy, and to try to do all they did previous to impregnation. Urinary examinations should be made once a month from the third to the seventh

[4] International Medical Magazine, January, 1900.

month and every two weeks from then to the ninth month, then every week until labor. The most practical method for obtaining a warning of the need of a urinary examination is to instruct the patient to give immediate information of any reduction in the amount of urine passed in twenty-four hours. Examinations should note the twenty-four-hour amount, the specific gravity, the reduction, if any, of urea and the presence of albumin and casts. Very few cases of eclampsia would occur if proper attention were given to the urine.

The question of ante-partum examinations is a broad one, but it involves 50% of the obstetrician's usefulness. If the patient is a primipara the pelvis should be measured by the twenty-eighth week. We should obtain the diameters of the iliac crests, anterior superior spines, the external and internal diagonal conjugata, and in misshapen pelves the external obliques, interischial and symphyseococcygeal diameters. Compare these diameters with the height and weight of the patient and her husband, their ages, and note the character of the mother's skeleton. A frame of light bones usually has a relatively large pelvic calibre, estimated from the external measurements, and vice versa.

In multiparæ where the previous children were of full size and term and the labors normal these measurements are not required, but a comparison between the size of the fetal head and that of the pelvic cavity should be made a fortnight before labor, since there may be an overgrowth of the fetus.

The principal facts to be ascertained by abdominal examination are the position of the fetus, twins, fetal vitality, grades of hydramnion, condition of the bladder, tumors in the abdominal cavity, and complications involving the kidneys, liver, heart, lungs, etc. Fetal malposition is frequent in proportion to the amount of amniotic fluid present. Malpositions present at the seventh month, where there is much room for fetal gyrations, do not necessarily persist, since usually with time the fetus daily represents a gain in space occupied compared with the amniotic fluid. But women with malpositions of the fetus should be examined every two weeks. External version may be final, if performed when the fetus is getting fixed in a malposition. Twins are usually a surprise, but need seldom be so, and often cause dangerous complications in delivery and the confusion incident to the arrival of the unexpected guest. Two heads, two heart rates and innumerable extremities are full of valuable diagnostic suggestions.

In habitual premature fetal death a weekly record of the fetal pulse should be made from the sixth month to labor. Patients with hydramnion should have the anemia usually accompanying it combated, and should be instructed when labor pains first occur to lie as still as possible in bed until amniotic rupture takes place, in order to avoid prolapsus funis or malpresentation of the fetus. Abdominal tumors may not be noticed by the patient, but should not escape the examiner's eye.

At least one vaginal examination should be made a few weeks before labor time, with an eye alert for placenta previa, exostoses, fibroids, ovarian tumors, atresia, pelvic contraction, cancer, vaginitis, etc.

The nipples should be examined a month before labor, milk scabs, abrasions and fissures treated, and depressed nipples elongated by traction daily.

PROGRESS IN OBSTETRICS DURING THE PAST TWENTY-FIVE YEARS.

Professor Fritsch [5] contributes an interesting paper on this topic for the anniversary number of the *Deustche medicinische Wochenschrift*, January 4, 1900. The gist of his summary is as follows: Our therapy of abortion has become more active, the degree of interference is greater. Our views of Cesarean section have undergone great changes, and the mortality of the operation has sunk from 50% to 5%. Naturally antisepsis is held partly responsible for this great advance. The discussion has become bitter over the relative merits of the Porro and conservative operation on the womb, with a relative victory for the latter. Perforation as a relative indication has now become almost a crime. Symphyseotomy has not yet won a permanent place for itself, despite the labors of its able champions. The technique is perfect, but the indications remain uncertain. The Walcher position, according to Fritsch, is a much more valuable contribution to modern midwifery. We have not much to boast of in connection with eclampsia. The most important advance here is Leyden's discovery of the "pregnancy kidney." Fritsch believes that narcotics have killed many an eclamptic who might otherwise have recovered. In pelvimetry we now have the instrument of Skutch for obtaining the true conjugate, and are no longer compelled to guess at it. Bandl's labors towards a better understanding of uterine rupture deserve recognition, as do the demonstrations of Fehling and Latzko that osteomalacia may be cured respectively by the operation of castration and the internal exhibition of phosphorated oil. The advances in the management of puerperal infections due to the application of the principles of antisepsis and asepsis are too well known and understood to require much space here. Absolute sterilization of hands we know to be neither attainable or necessary. Bacteriologists have not helped the practitioner much thus far. Ahlfeld has doubtless done good service to the practitioner in his antagonism of Credé's teachings in management of the third stage of labor, with regard to expectancy. Finally, the improvement in society and journalistic work in connection with obstetries is not the least advance along the line.

LABOR COMPLICATIONS AFTER FIXATION OF THE UTERUS.

Operations for fixation of the uterus have been so much in vogue during recent years that the results on subsequent pregnancies are now being observed and the dangers pointed out. In this connection Rühl [6] points out some of the serious complications of labor as the result of both vaginal and ventrofixation of the uterus. He says that the danger is greatest when the top of the fundus is fixed to the anterior vaginal wall in the vaginal operation, and in the abdominal operation when the fundus is fixed to the abdominal wall just above the symphysis. The obstruction to labor may be so serious that although the pelvis is of normal dimensions, Cesarean section may be required. He notes that Cesarean section when performed for this cause has been attended by the very high mortality of 50%. In a normal pregnancy at the fortieth week the long axis of the uterus lies exactly at right angles to the plane of the pelvic

[5] Obstetrics, February, 1900.
[6] Centrbl. f. Gyn., 1896, No. 51; 1900, No. 13.

inlet. After fixation the fundus is much lower than it should be, while the cervix is drawn up and retroposed, with the result that the uterine axis may be at an angle of only about 40° with the plane of the inlet. When uterine contractions occur under these conditions the tendency is for the presenting part to be driven backwards against the sacrum, instead of downwards and backwards in the pelvic axis. The cervix may be drawn so far up and back as to lie above the level of the sacral promontory, and the true pelvis may be bridged over by the anterior wall of the uterus and vagina in such a way as to leave between the anterior lip of the cervix and the sacrum no room for the passage of the child, or for the manipulations necessary for artificial delivery. In these cases the author advises an anterior uterovaginal section, consisting of an incision passing through the anterior lip of the cervix, the anterior uterine wall and vagina, after as much natural dilatation of the cervix as possible has been obtained.

Kallmonger[7] reports a case of Cesarean section after vaginal fixation in which at the seventh month there were symptoms of threatened miscarriage relieved by prolonged rest in bed, but at term labor began with the axis of the uterus running anteroposteriorly and the fetus lying transversely. After sixteen hours of labor no progress had been made and it was feared that the posterior wall of the uterus would rupture. Cesarean section was performed and in the operation the anterior wall of the uterus was not seen at all, while the posterior wall was as thin as paper. The woman did well, but the author recommends the early induction of premature labor.

A case of rupture of the uterus at the Munich Maternity after vaginal fixation is reported by Frickhanger.[8] In this case dilatation was normal, but the head could not be reached by forceps and version was performed, a contraction ring being encountered. The child survived, but the mother died on the fifth day of peritonitis, due to rupture of the vagina and posterior part of cervix. The reporter concluded that on account of the vaginal fixation the anterior lip of the cervix could take no share in the dilatation, so that there was an unusual strain on the posterior lip and neighboring part of the vagina.

DIMINUTION IN THE SIZE OF THE SHOULDERS IN DIFFICULT LABOR.

Bonnaire,[9] in the *Presse médicale*, March 14, 1900, describes 2 cases in which cleidotomy division of the clavicle was performed in order to extract the fetal body after the head had been broken up by the basiotribe. In one case double cleidotomy was necessary, in the other unilateral sufficed. From 5 experiments on dead fetuses he found that the double operation reduced the size about 10 centimetres. Cleidotomy has as yet been performed only on the infant already dead, and it is indicated when the shoulders cannot be extracted by ordinary or other means, as in pelvic contraction, when they become impacted in the cavity after the head has been broken up, when the shoulders are excessively broad and when it is necessary to reduce to a minimum the efforts at extraction, as in rupture of the uterus. It is performed with strong scissors or with a perforator. When the operation is impracticable through the folding forward of the shoulders or from other causes, Bonnaire recommends and has successfully practised another procedure called "supra-acromiotomy," or deep division of the soft parts over the anterior supra-acromial region. These operations are usually to be regarded as supplementary to cephalic embryotomy, but Bonnaire thinks that cleidotomy may be permitted even in the case of a living infant whose head has been born, but whose shoulders remain fixed, for in the experimental cases the subclavian artery has never been wounded nor the subclavian muscle cut.

PUERPERAL ECLAMPSIA TREATED BY DIURETIC INFUSIONS.

Dr. Jardine[10] reports a series of 22 cases of eclampsia treated by diuretic infusions. He says that in the actual seizures of eclampsia diuretics by the mouth are too slow in action, and that for the past three years he has been giving saline infusions consisting of sodium chloride and potassium bicarbonate or sodium acetate. The infusions are given usually under the breast. In his first 12 cases he used potassium bicarbonate and sodium chloride in equal parts, a drachm to the pint. In the last 10 cases he has substituted sodium acetate for the bicarbonate of potash, using 1 drachm of it with 1 drachm of sodium chloride to the pint of sterilized water at a temperature of 104°. One to 3 pints may be used at a time and is repeated if necessary. Aseptic precautions are rigidly followed, but the author has never had any sloughing or abscess formation in 200 infusions. He feels confident of the diuretic action of the infusion, as in some of his cases from 60 to over 100 ounces of urine were measured in the first twenty-four hours. In several cases analysis of the urine before and after infusion gave a marked increase in urea and uric acid after infusion. In addition he gives chloroform, veratrum viride, chloral and bromide, and magnesium sulphate. The obstetric treatment is varied according to the condition of the patient. If there is no indication of labor he does not empty the uterus unless the convulsions continue, and then if dilatation is difficult the cervix is freely incised. Cesarean section he thinks unjustifiable in these cases, as the results have been anything but good. Of the 22 cases treated by diuretic infusion, most of which were very severe, all but 5 recovered, and 1 of these 5 died on the seventh day of perforating duodenal ulcer. This case being properly omitted, leaves a mortality of only 4 in 22 cases, which is noteworthy in a series of hospital cases.

PLACENTAL TRANSMISSION.

Doreland[11] reviews the subject of placental transmission of drugs and specific diseases, and from the meagre literature derives these very suggestive, if not conclusive, arguments:

While many drugs may be administered to the mother without any noticeable effect upon the fetus, there are certain substances that show a special tendency to traverse the placenta, and entering the fetoplacental circulation, exert a positive influence for good or evil according to the condition that may be present in the given instance. Maternal medication, therefore, is indicated in certain conditions, either in

[7] British Medical Journal, 1899, vol. ii, p. 31. Epitome of Medical Literature.
[8] New York Medical Journal, April 14, 1900.
[9] British Medical Journal, 1900, vol. i, p. 67. Epitome of Medical Literature.
[10] British Medical Journal, May 26, 1900.
[11] The American Gynecological and Obstetrical Journal, June, 1900.

order to prevent the development of a similar condition in the fetus, or to counteract the effect of germs and their toxins already introduced into the fetal economy.

The drugs that have been found to effect the fetus in utero are notably opium, mercury, copper, lead, arsenic and the iodides. In appropriate doses they may be administered to the mothers in suitable pathologic conditions with beneficial results to both mother and child. Any morbific influence acting upon the mother either acutely, as in the case of the exanthemata, or more slowly, as in tuberculous and specific infection, will react deleteriously upon the product of conception and either destroy it through its overwhelming toxic action, or render it feeble and less resistant to subsequent and post-natal invasion, or the disease will run an atypical course in utero with or without apparent vestiges at birth.

The entrance into the fetal structures is accomplished through the agency of the fetoplacental circulation. It is probable that access is gained through bacterial action, the germs rendering the placental villi less resistant to invasion, whereby both the microbes and their toxins pass the natural barrier at the chorio-decidual junction.

As a rule the infectious diseases do not manifest their characteristic visceral lesions in the fetus, probably because of the passivity of these organs during antenatal existence. The germs, however, may be detected in large numbers by bacteriologic and microscopic examination.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

A. K. STONE, M.D., SECRETARY.

Regular meeting, Monday, December 10, 1900, Dr. E. H. Bradford in the chair.

Dr. W. B. Lancaster presented a short paper on

THE RADICAL TREATMENT OF LACHRYMAL DISEASES.[1]

Dr. C. H. Williams: I am very glad to have Dr. Lancaster bring this subject up because I think it is one which should have more attention. In many cases certainly the operation gives excellent results, better than in any other way. My brother Edward, who spent about a year at the clinic of Professor Völkers, tells me that the latter does the operation in many cases and thinks very highly of it. He generally removes only the sac and not the gland.

Dr. Standish: I have had very little experience with the operation. Ten or twelve years ago I performed this operation in 3 or 4 cases. In each case I was unfortunate enough to get infection, and I never operated by this method again. Probably the infection was due to faulty technique, but it discouraged me.

Dr. Jack: I can speak of 1 of these cases from personal knowledge — the young lady. I saw her for months. She went from my service to Dr. Lancaster's at the City Hospital. I tried all manner of things, and at the last tried to do the more radical operation of cutting the stricture all the way down, and then using Theobald probes of large size. This was kept up a while, I thought with a little improvement, but she was still very bad when I left her. One could not do anything more radical than this, outside of the operation which Dr. Lancaster has described.

Dr. Edward L. Parks read a paper entitled

AN OPERATION FOR CATARACT.[2]

Dr. H. Barton Jacobs, of Baltimore, Md., late secretary of the American National Committee, read

A SHORT ACCOUNT OF THE RECENT INTERNATIONAL MEDICAL CONGRESS AT PARIS.[3]

Dr. J. C. Warren: I am very happy to testify to the accuracy of the extremely interesting paper of Dr. Jacobs. The feature which interested me more than any other in the congress was the assemblage of men. It seemed to me that this was one of the most attractive features to the stranger who had not visited any of the congresses in Europe or in this country for a great many years; that it was an exceptional opportunity to see the men who had sprung up in the last generation, and the gathering in Paris at the end of the century certainly offered an opportunity which was not likely to occur again for a long time. And such proved to be the case. I can bear testimony to the statement of Dr. Jacobs that the men who visited the congress were men of the highest standing in medicine throughout the world. They all took an active interest in the proceedings and took part themselves. The leaders of the various countries were there, and it was a grand opportunity to be able to see these men, hear them speak and speak to them. I think the social side of these congresses is a very important feature, and I think it was so felt by the men themselves, by the Frenchmen particularly. I heard many allusions to this feature of the congress, that although they recognized that a great deal of excellent work was being carried out, none the less interesting were the social gatherings where men could be introduced to one another and exchange views about methods of treatment, operations or scientific questions, that they would not be able to do in the more formal gathering. Dr. Jacobs has alluded to most of the social features which I had the pleasure of attending. The receptions at the Elysée Palace which I attended were most interesting and dignified. The early morning reception was a particularly interesting one, as it included a small number of select men from each country gathered in a hollow square around the reception hall of the palace, the President going from one group to another making a few graceful greetings to the representatives of each nationality. The afternoon reception at the Elysée which came at the end of the congress was really a most artistic and picturesque affair. The gardens are very beautiful. The palace stands at the head of a lawn which slopes gently away and is surrounded with fine trees. At the end of this was a temporary theatre in which the most classic dances were given; not simple ballet, but a most artistic representation. No Roman festival could have been more classic and imposing in its conception and execution.

The opening of the congress in the Salle des Fêtes

[1] See page 34 of the Journal.

[2] See page 37 of the Journal.

[3] See page 29 of the Journal.

was also a very attractive feature of the congress. This is the largest room I was ever in, possibly excepting St. Peter's. It was a dome-shaped affair, perfect circle, and of a diameter which made an individual seem very small indeed, and, although I am not familiar with the exact dimensions, it would take an enormous assemblage to fill it. The congress, containing several thousand, did not fill more than half of the room itself.

This meeting was certainly an interesting one, as it gave us an opportunity to see representatives of all the nations of the world coming forward and extending their greetings to the congress. The reception in the Luxembourg Palace was hardly to be considered as a success. It did not seem to me the French could handle very large bodies as well as we were able to do it at our Columbian Exposition.

The part that interested me most was naturally the surgical part, and our party visited several of the hospitals. Doyen's was one of a number of places we went to. No one could but be impressed with his mechanical ingenuity and great operative skill. One would perhaps be more impressed with this feature than with other qualities which go to make a great surgeon. He has worked very hard to hold his own against the red tape which every aspirant for surgical honors in Paris must bow to if he wishes to reach the top of the ladder. He is working entirely independently. He is a great mechanical genius and there is hardly an instrument in his hand not designed by him. His rapidity of operating was great and his skill certainly was exceptional.

Tuffier impressed me very much indeed — a charming gentleman, evidently one of the leading surgeons of Paris. He is a beautiful operator, and he carried out his method of anesthesia with great ease and skill. The operations I saw were very important, one double ovariotomy, another removal of the kidney, done rapidly and without effort on his part, and entirely successful as far as anesthesia was concerned. Both the patients, however, seemed to be in a condition of marked shock shortly after the operation — faces blanched, respiration shallow and hurried, eyes rolled up and the pulse almost imperceptible. I could not feel the pulse at the wrist in one of the cases, and the patient complained of distress and nausea. Tuffier turned it off with the expression, "mal de mer," and paid no attention to it, and the nurse carried the patient out in that condition and he maintained that they all did well. A patient in that condition in one of our wards would receive a good deal more attention than was given to them on that occasion.

I think no American surgeon could help being struck with the lack of perfection in details of aseptic and antiseptic technique in surgery at most of the Paris hospitals. They certainly do not compare with what one sees in the best clinics in this country and one can say the same of Great Britain. There was a distinct disappointment to all the visiting Americans that they did not see better work at the hospitals they visited. I do not speak of the North German hospitals, because I did not visit them, but those I did see in the middle parts of Europe I certainly was not impressed with. They have little idea in some of the countries of aseptic surgery; no apparatus for sterilizing on a large scale as we see in our large hospitals. The hospitals in Paris are mostly old, and it is only here and there in certain portions of them an attempt has been made to bring them up to date and then in a way certainly not on a scale that would be at all satisfactory to an American surgeon.

DR. RICHARDSON: In reference to the clinic of M. Doyen I should like to say that I was very much impressed with it. I thought it as good surgery as I had ever seen. About his surgical judgment I know nothing. The first operation that he performed was opening the skull in a most effective way after it had once healed from a previous operation. We saw the beautiful first intention of his first incision. He thought that not quite enough bone had been taken out at the first operation and he therefore removed a little more. He showed us his electric saw, which worked to a charm. The hysterectomy and one or two other operations he did with great skill, and it seemed to me with great care, although he worked rapidly. He was rapid where a man may safely be rapid, and cautious where a man ought to be cautious. He was rapid until he got to the ureters, and then very careful, and once or twice, where he thought he might be in danger, he was slow and painstaking. The moving picture machine is a most vivid and an excellent way of teaching operative methods. One can get a perfect idea of every step of an operation. By means of this machine it would be possible to demonstrate the methods of every surgeon. If there were any step of the operation not understood, the machine could be stopped and any single photograph could be studied until it was fully understood.

DR. GEO. B. SHATTUCK: I was quite surprised to see my name on the programme as one who was to address the meeting this evening. I incline to explain its being put there on the supposition that I represent the considerable class who did not go to the congress. I was not there and I have no personal experiences or reminiscences to relate. I congratulate the meeting upon having had the pleasure and the profit of listening to Dr. Jacobs's account of the congress, an account which is extremely well drawn up, and which represents of course admirable facilities for giving us a description of what took place there. In the course of his paper he refers to a letter which was published in the *Medical Journal* here, and for the publication of which I am in a measure responsible. I think Dr. Jacobs exaggerates the effect — I hope he exaggerates the effect — which that letter may have had in diminishing the number of representatives from New England who attended the congress last summer. On the other hand, I should not be at all surprised if one might justly attribute in a measure to the publication of that letter, and to other similar statements, a part of the marked cordiality which was shown to visitors, and particularly to American visitors, although I have no question that under any circumstances Dr. Jacobs himself would have been well received. I think that it was high time that the better class of the French were brought to their senses. Liberty had degenerated into license there. I was in Paris about eighteen months ago, and I had an opportunity then to observe the remains of the exaggerated feeling which the French permitted themselves to entertain toward America and Americans during the progress of our Spanish War, and they had an excitability, a want of control, an absence of treating abstract political propositions or others where their interests and emotions are affected — of treating such in an abstract

fashion; the personality enters too much always, and they permitted it to enter in an excessive degree during our Spanish War, and subsequently for a considerable period during their differences with the English. And, as I say, in the exhibition of their feelings they had allowed liberty to degenerate into license, and had allowed the baser portion of the population, which is not a small one in Paris, to conduct itself in various ways in a manner which was at once disgusting, discreditable and disgraceful. If the treatment of foreigners and the sentiments shown toward foreigners had always been such in Paris and in France as they were at the time Dr. James Jackson and his fellow townsmen were there, in the thirties, about whom we all know well, and of whom I probably know as much as anybody, I doubt whether an indication would have arisen for the expression of such sentiments as it seemed necessary to express during this last summer. Again, it has been asked why Americans should concern themselves with incivilities to the English. There is one sufficient reason, if no more: the community of language. In a hostile atmosphere one English-speaking person is as bad as another.

I am glad that Dr. Jacobs, and those of our compatriots who were wise enough and fortunate enough to attend the congress, found everything so much to their satisfaction, and I am glad that even the weather adapted itself to their convenience and enjoyment. I have been in Paris more than once in July and August, but a cold wave during the first two weeks of August I have never encountered. I again congratulate Dr. Jacobs upon his experiences, and the society upon his felicitous manner of imparting them.

Dr. Bradford: I know I express the opinion of the Americans who were in Paris, and also of the profession of this country, in extending thanks to Dr. Jacobs for his energy in arranging the American representation at the Paris Medical Congress. What he states in regard to the congress is not only true, but more could have been said if his modesty had not restrained the full measure of his enthusiasm. A comparison between this congress and that in Berlin would suggest many interesting deductions. The Berlin and the Paris congresses were probably the most notable medical congresses that have ever assembled. At Berlin there was the feeling that the visitor was in the presence of a strong, active, virile, scientific movement. It was also impressed upon the visitor that what Dr. Shattuck would perhaps take exception to was not wanting, and unbecoming at times in an atmosphere of the purest science. In Paris the visitor could feel that he was the guest of a most cultivated nation, extending a hospitality that was not only cordial, but imperial in the quality, grace and richness of his entertainment. No one could enter the École de Médecine and find himself in the place where so much of the advance in medicine in this century had its origin without a certain inspiration. At the Sorbonne it is impressed upon the visitor that this great university where Chaucer and Dante went to learn, the place where from Abélard to Renan, Descartes and Bichat to Pasteur and Roux, that which would help humanity has been for centuries carefully and earnestly considered, is today one of the greatest of existing educational influences. It is to be remembered that this congress of seven thousand physicians was simply one of several congresses, and that at the same time the Sorbonne was entertaining there a congress of general education, higher and primary education, with delegates from everywhere in the world, and the thought suggested itself that perhaps from this educational Mt. Parnassus today comes the strongest movement for education that exists anywhere in any one locality. The great advantage of scientific congresses is to diminish prejudices. So much has been said as to the degeneracy of the Latin races that an exemplification of this might be expected by a visitor to Paris. The two hundred congresses which were held in Paris this summer in addition to the World's Exposition, the greatest and richest collection of human productions ever gathered, hardly justified such an opinion. On the contrary the feeling suggested itself that perhaps the Continental opinion had some justification, the Continental belief which regards the Anglo-Saxon and especially the American civilization as given over too much to material things on account of our great wealth, our great commercial and financial success, disregarding in a measure science and art, and not giving humanity the highest gifts of mental effort in proportion to our talents of energy and strength. It is folly to go to Paris to scorn. We must bow to the French in thanks for their great intelligence and activity as exemplified in the wonderful organization of this most remarkable medical congress. The society will, I know, join me in offering thanks to Dr. Jacobs for his kindness in coming here.

Recent Literature.

Medical Diseases of Infancy and Childhood. By Dawson Williams, M.D., Physician to the East London Hospital for Children. New (second) edition. Specially revised for America by F. S. Churchill, A.B., M.D., Instructor in Diseases of Children, Rush Medical College. In one 8vo volume of 538 pages, with 52 illustrations and 2 colored plates. Philadelphia and New York: Lea Brothers & Co. 1900.

This comparatively short book is, on the whole, fairly satisfactory. The author's point of view, however, seems that of ten or fifteen years ago rather than that of today. The strongest points in the book are the accurate and comprehensive clinical descriptions. They cannot fail to be most useful, especially to the beginner. The author has stated in his preface that pathological processes are essentially the same in children as in adults, and hence has given but little space to their description. In some instances it seems as if more would have been better. There is little tendency to make use of modern methods of diagnosis, the chief reliance being placed on symptomatology. This failure has been to a certain extent repaired by Dr. Churchill. Even he, however, has not taken up modern methods as thoroughly as he might have; for example, the leucocyte count is mentioned but twice as a means of differential diagnosis, and then superficially and inaccurately. Much space has been given to treatment, much of which is very good and all of which is suggestive. This must also prove of great assistance to the beginner. Too many drugs are mentioned, however, in the treatment of certain diseases,

in which they are certainly of but little value. There is a tendency also to polypharmacy.

The paper and print are good. The various diseases follow each other closely without any break in the text. The addition of a few pages would have avoided this crowding and added much to the appearance and clearness. The pictures are few and only mediocre. The arrangement of the various chapters is certainly a strange one. Diseases of the mouth are placed between the diseases of the heart and those of the upper respiratory tract. Tubercular meningitis is taken up under nervous diseases instead of with tuberculosis. Cerebrospinal meningitis, however, is properly classed with the acute infectious diseases.

The introductory remarks on the care of children are very good, and show the results of much practical experience. The chapter on the clinical examination of infants also contains many useful points which will be especially instructive to beginners. The chapter on the diseases incidental to birth is not so good. The part played by congestion in the causation of meningeal hemorrhage is not mentioned. The article on melena neonatorum is misleading. Dr. Churchill's explanatory note is much better. The chapter on food, except for the part written by Dr. Churchill, is rudimentary and far behind our present knowledge. The part written by Dr. Churchill is up to date and very good.

As would be expected in an English book, the chapters on the acute exanthemata are very good. The chapters on tuberculosis are, as a whole, pretty good. The article on tubercular peritonitis, however, is not up to the standard of the others on tuberculosis. The chronic ascitic form is not mentioned, and the fibrous form is not described, the caseating form alone being considered. The section on tuberculosis of the lungs is, on the contrary, extremely good.

The chapter on the diseases of the blood is incomplete and the descriptions, both of the symptoms and of the blood, poor. Leucocytosis, for example, is described under secondary anemia, and under splenic anemia is described secondary anemia with splenic enlargement rather than the true splenic anemia.

The chapter on dentition and the diseases of the mouth is especially good, as is also that on the diseases of the upper respiratory tract. Those dealing with the diseases of the lungs and pleura are also very good.

The chapters on the diseases of the gastro-enteric tract are not up to the standard of the rest of the book. No attempt has been made to separate the diseases of the stomach from those of the intestines, or functional diseases from organic. All the forms of diarrhea are inextricably mixed together so that the beginner could hardly get a correct idea of the different forms. This fault is redeemed to some extent by the reviser's notes, which are very much to the point, but because of the confusion elsewhere are somewhat difficult to apply. Infantile atrophy is classed among the chronic diseases of the gastro-enteric tract instead of as a disease of nutrition, and is given but one paragraph and no treatment.

The section dealing with the normal urine embodies the original researches of Dr. Churchill and contains much which is new to textbooks. In the chapters on the nervous system various symptoms and conditions have been put on a par with the true functional diseases and treated as such; for example, deafness due to inflammation of the middle ear has been treated as a disease of the nervous system. But one cause, gastro-enteric toxemia, is recognized for tetany. The articles dealing with the organic diseases of the nervous system are fair, while those treating of the skin are good.

As already stated, the book is, on the whole, fairly satisfactory and especially strong in clinical description. The annotations of Dr. Churchill add much to its value and lead us to hope that he may some time give us a book of his own.

Refraction, and How to Refract. Including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye Glasses, etc. By JAMES THORINGTON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Second edition. Pp. 301, with 200 illustrations, 13 of which are colored. Philadelphia: P. Blakiston's Son & Co. 1900.

The first edition of this work, published in November, 1899, was reviewed in these columns, and the fact that a second edition has been called for so soon would seem to show that the book may prove as popular as the work on "Retinoscopy" by the same author.

A Book of Detachable Diet Lists for Various Diseases. Compiled by JEROME B. THOMAS, JR., A.B., M.D., Instructor in Clinical Medicine, Long Island College Hospital, etc. Second edition, revised. Philadelphia: W. B. Saunders & Co. 1900.

This is a convenient list of diets, so printed and arranged that the physician may easily extract what he desires to prescribe in the way of food, freeing him from the necessity of writing out detailed directions. The only danger in such a plan is that the physician by degree loses initiative, but this after all may not be an unmitigated evil amidst the growing details of so-called general practice.

Insect Larvæ as Occasional Parasites in Man. By EHRICH PEIPER, M.D. Berlin: Louis Marcus. 1900.

This little book is an amplification of an article on the same subject in one of the German medical journals. It offers in convenient form an abstract of what is known of the action of larvæ on the skin and subcutaneous tissue, the mucous membrane of the mouth, nasal cavity and ear, and on the stomach and intestines. The writer has apparently made a careful search through the literature, and the book will be found most useful for reference. There is a complete bibliography appended.

Dermatohistological Technique. By MAX JOSEPH, M.D., and GEORGE LOEWENBACH, M.D. Second edition. Berlin: Louis Marcus. 1900.

The object of this book is to provide a guide both for the beginner in the histology of the skin, and for the more advanced investigator, and to furnish an abstract of all the more important technical methods. As no similar compilation exists, so far as we are aware, it should be welcomed as a real addition to dermatological literature. The fact that a second edition was demanded at the end of six months speaks for its success.

The International Textbook of Surgery. By American and British Authors. Edited by J. COLLINS WARREN, M.D., LL.D., Professor of Surgery in Harvard Medical School; Surgeon to the Massachusetts General Hospital, and A. PEARCE GOULD, M.S., F.R.C.S., Surgeon to the Middlesex Hospital; Lecturer on Practical Surgery and Teacher of Operative Surgery to the Middlesex Hospital Medical School, etc. Vol. II, Regional Surgery. Pp. 1,072, with 471 illustrations in the text, and 8 full-page plates in colors. Philadelphia: W. B. Saunders & Co. 1900.

This excellent volume fully justifies the expectations aroused by the publication of its predecessor (Vol. I), a review of which has already appeared in this JOURNAL.[1] It is the concluding volume of the work.

Its general characteristics, as regards presswork, illustrations, classification, indexing, etc., are similar to those noted in Vol. I.

It deals solely with regional surgery. The contributors are all men well known in this country and abroad. Many have written monographs of note, or have made extended investigation of the special subjects treated in the chapters assigned them by the editors. Particularly so are the writers of the chapters describing the surgery of the breast, appendix, hernia, ureter, kidney and ear. The articles devoted to military surgery, which includes a description of modern firearms and projectiles, to naval surgery, and to surgery and surgical operations in the tropics, make the work a thoroughly modern one, and are of especial interest at this moment on account of the attention which the events of the last two years have attracted to this branch of surgery.

The articles are all well written. As stated in describing Vol. I, the plan of paragraphing distinguishes the subdivision of subjects from the general text, and makes a book quite convenient for reference. The different articles contain the essential facts relating to the particular subject discussed that are found in modern surgical literature. Although some at first sight seem rather condensed, still, as the book is designed as a textbook, perhaps this is a feature to be commended rather than criticised.

The book represents work which is highly creditable to all concerned in its production.

On the Prevention of Eye Accidents Occurring in Trades. An Address Delivered at the Opening of the Section of Ophthalmology at the Annual Meeting of the British Medical Association, at Portsmouth, August, 1899. By SIMEON SNELL, F.R.C.S. (Edin.), Ophthalmic Surgeon to the Royal Infirmary, Sheffield; Professor of Ophthalmology, University College, Sheffield. Pp. 32, with 11 full-page illustrations. London: Ball, Sons & Danielsson, Ltd. 1900.

The author, living and practising in Sheffield, Eng., has naturally been much attracted to this subject, and writes from a larger experience than that of any confrère in any country in all probability.

The subject is treated forcefully, and means of preventing such accidents described and discussed. The little book is well worth the attention of all, whether physicians or laymen, interested in abating the dangers run by certain classes of workmen.

[1] 1899, vol. exlii, p. 257.

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THE RATIO OF PHYSICIANS TO THE POPULATION.

RECENT publications present an opportunity to learn the relative number of physicians to the population in the United States and in Germany, with a fair degree of accuracy, and to compare these numbers in the different States with each other.

Dr. Abbott's recent monograph, which was prepared for the Paris Exposition,[1] contains a table, the basis of which is "Polk's Register of Physicians in the United States." The relative figures were determined by comparing these figures with the population of each State as estimated for 1898, and may be considered as fairly correct, with the exception of Oklahoma and one or more new States in which the rate of increase was out of all proportion to that of former years.

The publication of a later edition of the "Register" in 1900 makes it possible to present on the following page a more accurate table, based upon the recent census of 1900.

From the following table it would appear that either the old aphorism that 1,000 inhabitants are required for the support of the average physician must be considered as out of date, or a large proportion of the profession are not earning a living, since the average for the United States at large as shown in the following table is 1 physician to each 655 inhabitants. Moreover the large annual product of the medical colleges is constantly tending to diminish this number of inhabitants to each physician.

An examination of the following table shows that California is the State which is most liberally supplied with medical men, the proportion there being 1 physician to 416 inhabitants, and the ratio in Colorado and Vermont is about the same, while the States which are the most sparsely supplied are South Carolina, North Dakota, North Carolina, New Mexico and

[1] **The Past and Present Condition of Public Hygiene and State Medicine in the United States; being No. 19 of the Monographs on American Social Economics, prepared for the Paris Exposition of 1900.**

Alaska, with respectively 1 to 1,123, 1,132, 1,189, 1,395 and 2,349 inhabitants.

These conditions are clearly illustrated for the year 1898 by means of a chart in the pamphlet referred to. The two tables for 1898 and 1900 do not present very striking differences except in the States of Iowa, Kansas and Nebraska, the reasons for the difference being apparently due in the two former States to an unusual increase in the population, and in the latter to an unusual increase in the number of physicians.

Turning now to Germany, an entirely different condition is evident as shown by the recent publication of the Imperial Board of Health of the German Empire.[2] In that country, three enumerations of the physicians have been made at intervals of eleven years, one in 1876, one in 1887, and the last in April, 1898. The last enumeration was very comprehensive and included all persons employed in connection with the care and treatment of the sick, either in private practice or in hospitals or other institutions. The circular calling for information was issued by the Imperial Board of Health of Germany and included the enumeration of the following persons:

Regular practising physicians: (*a*) Physicians in private practice; (*b*) physicians in institutions; homeopathic physicians; military and naval surgeons; other "approved" practitioners, including surgeons and country doctors; dentists; dentists' assistants; nurses, masseurs, etc.; veterinary surgeons, civil and military; midwives.

The foregoing are still further classified quite minutely.

Two excellent maps are also presented, showing the distribution of physicians in the German Empire.

In the empire at large the number of physicians had increased from 15,284 in 1887 to 24,725 in 1898, or more than 56%, while the population had increased only 14%. This last enumeration shows that the ratio of the number of physicians to the population in Germany is very much less than that which prevails in the United States, since in the German Empire there was in 1898 only 1 physician to each 2,114 inhabitants, while in the United States at the same time there was 1 for every 647 inhabitants.

[2] Medizinal-statistische Mittheilungen aus dem kaiserlichen Gesundheitsamte, Bd. vi., H. 1, Berlin, 1899.

The German documents also give a further classification in detail according to the density of the population of 1,005 districts.

In districts having more than 20,000 (cities), the number of the physicians had increased from 6,648 in 1887 to 12,651 in 1898, or 90%, the population increasing meanwhile only 48%.

In districts having from 5,000 to 20,000 inhabitants, the number of physicians had increased from 3,295 to 4,256, or 29%, the population increasing only 19%.

In the smaller districts having less than 5,000 in each, the physicians increased in the eleven years from 5,881 to 7,818, or 33%, while the population remained nearly stationary.

The number of homeopathic physicians in the German Empire is stated as 240, or less than 1% of the whole number of practitioners.

The veterinary surgeons were 3,813 in number, and are compared with the class of patients whose ills they are called upon to treat, there being in the German Empire 1 veterinary surgeon to every 1,240 horses, and 5,677 head of cattle.

An examination of the maps and accompanying tables shows that both physicians and midwives are distributed most liberally in Bavaria and the districts along the Rhine, while the districts which are most sparsely supplied are those of Northeastern Prussia and the Russian border.

NUMBER OF INHABITANTS TO EACH REGISTERED PHYSICIAN, 1900.

Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.
California.	416	Maryland.	565	Delaware.	694	Alabama.	930
Colorado.	452	Michigan.	570	Nevada.	706	Wisconsin.	936
Vermont.	469	Indian Territory.	597	Oklahoma.	707	Utah.	944
Ohio.	489	New York.	603	Nebraska.	725	Wyoming.	964
Indiana.	494	Iowa.	609	Idaho.	749	Louisiana.	985
Missouri.	507	Texas.	612	Florida.	751	Minnesota.	1,004
Arkansas.	546	Kentucky.	625	Arizona.	754	Mississippi.	1,027
Kansas.	555	Oregon.	638	Washington.	762	South Carolina.	1,123
Tennessee.	556	UNITED STATES.	655	Georgia.	767	North Dakota.	1,132
Maine.	556	Pennsylvania.	662	Montana.	782	North Carolina.	1,189
Massachusetts.	561	West Virginia.	667	Virginia.	842	New Mexico.	1,395
Illinois.	562	Connecticut.	687	New Jersey.	856	Alaska.	2,349
New Hampshire.	564	Rhode Island.	692	South Dakota.	894		

PHYSICAL CULTURE.

HOWEVER it has come about, whether through the increasing devotion to athletics or for other reasons, it is clear that physical culture in the broad sense is occupying a more and more conspicuous place in education. This must certainly be regarded as an unqualified good, and chiefly because it is based on a system which may justly lay claim to a scientific basis. Physical training is gradually but surely becoming rational; the excesses to which competitive athletic events are always likely to lead will surely be modified by a knowledge of the physiological effects of training. Both directly and indirectly the present zeal for physical culture, designed not only to make the strong stronger, but also the weak strong, is doing much to-

ward the general development of the masses of young men and women. Institutions have, however, been slow in completely recognizing the dignity of this branch of education by establishing a definite department under the jurisdiction of a competent head. It is, therefore, of particular interest at this time that the Massachusetts Institute of Technology has taken action to install a new department devoted to physical culture. The formal announcement of this fact was made by President Pritchett at the annual dinner of the Alumni Association recently held in Boston. It was announced that the corporation had voted to give the land for the building, which is to be a memorial to the late General Walker, former president of the Institute. In this building is to be established the new department, provided the necessary endowment fund can be raised, under the charge of "a man who shall be able to do for the physical side of the students what the heads of other departments now do for the intellectual side." It is sincerely to be hoped, and there is small doubt that the hope will be realized, that this somewhat unique department of a great educational institution may be generously maintained. It will prove not only of service to the institution with which it is connected, but will undoubtedly serve as a stimulus toward the establishment of similar departments elsewhere. The time is undoubtedly ripe for just this line of work, and we are gratified to see that so worthy a memorial is to be erected to the lamented president of our most conspicuous technical school.

The tendency everywhere apparent is further shown by the recent meeting in New York of the various physical directors of the larger gymnasiums connected with our schools and colleges. The strength which comes from organization will no doubt show itself by renewed and systematic attempts toward raising the standard of this department of school and university work. The very general introduction of physical training into the public schools has already been productive of much benefit to the pupils. The idea, recently suggested for the Brookline, Mass., schools, of giving special treatment to pupils of imperfect physique, is also unquestionably a step in the right direction. The whole movement toward bringing about a symmetrical physical development, beginning with the very young, is in every way commendable.

In the hands of competent men there is small danger of attaching undue importance to this fundamental branch of a child's education.

MEDICAL NOTES.

ABSTRACT REPORT OF THE COMMITTEE ON THE LIBRARY OF THE NEW YORK ACADEMY OF MEDICINE. — Number of books in the library, November 30, 1900, 89,000 volumes, duplicates, 36,105 volumes, included; books added during year, not including duplicates, 3,649 volumes; in the circulating department 971 books and 832 journals were issued to 194 readers; 11,520 readers have registered during the year in the reading room, and probably many others have used the library but not registered. The library is growing rapidly, the additions annually for the last four years being at least 3,500 volumes a year (in 1898, when the library of the New York Hospital was donated to the academy, 7,000 volumes) without including duplicates. Nine hundred and ninety-one journals in many languages are on file, and add 1,135 bound volumes this year to the shelves. Including the duplicates, the natural growth amounts to about 5,000 volumes, and at this rate there is only space left in the stack room for five years more. More space for the library is urgently needed, and it will be difficult to find this space in the present building. At present there are 13,430 feet of shelving available, of which less than 3,000 are unoccupied, and 600 feet of shelving are needed annually for the natural growth in new books. The labor of taking charge of this large collection of books will require an increase in the librarians' staff this coming year. More money is urgently needed, both for the purchase of books and for the running expenses.

DEATH OF AN ARMY NURSE. — Mrs. Anna Morris Holstein, a famous army nurse in the Civil War, widow of Major William Hayman Holstein, has recently died in Redhill, near Norristown, Pa., aged seventy-six. From 1862 until the close of the war Mrs. Holstein was engaged in the hospital service, and after the battle of Gettysburg she was matron in chief of a hospital in which 3,000 seriously wounded men were looked after. It is said to have been largely through her influence that Washington's headquarters at Valley Forge were purchased, restored and made accessible to the people.

PLAGUE IN VLADIVOSTOCK. — The reports of an outbreak of plague at Vladivostock are confirmed. There had been up to January 4th 19 cases, of which 15 were fatal. Owing to a recrudescence of plague at Smyrna, a quarantine has been imposed by Turkey and Greece on arrivals from that port.

TWENTY-FIVE THOUSAND DEATHS FROM PLAGUE. — Lord Curzon, Viceroy of India, has stated that since the appearance of the bubonic plague, in 1898, 25,000 deaths from the disease have occurred in the Mysore State.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 9, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 192, scarlatina 55, measles 43, typhoid fever 24.

BOSTON MORTALITY REPORT. — The number of deaths reported to the Board of Health for the week ending January 5th was 239, as against 283 the corresponding week last year, showing a decrease of 44 deaths, and making the death rate for the week 22.2. The deaths from consumption were 24, pneumonia 34, whooping cough 2, heart disease 22, bronchitis 10, marasmus 4. There were 14 deaths from violent

causes. The number of children who died under one year was 38, under five years, 64, persons more than sixty years 54; deaths in public institutions 88.

ITEMS IN BOSTON LOAN BILL. — The mayor has approved, among others, the following items of the loan bill, recently submitted to him: Hospital Department (Boston City Hospital), $100,000 for new surgical out-patient building; $120,000 for a ward for patients requiring isolation; $30,000 for a new wing at the Long Island Hospital; $20,000 for a nurses' home at the same institution; $75,000 for new building at the Boston Insane Hospital.

BOSTON MEDICAL LIBRARY. — The new building of the Boston Medical Library will be open for inspection of the public on Saturday, January 12th, 11 A.M. to 5 P.M. The dedication exercises, for which invitations have been issued, will take place in the evening.

NEW YORK.

HEALTH STATISTICS, 1900. — The following is a portion of a statement given out January 4th by Dr. Tracy, Registrar of Records in the Health Department: "The year set in with a high mortality, due to the recurrence of influenza, which began its ravages in December, 1899, and did not disappear until the following June. The epidemic culminated in March, but its decline was slow, and during the first five months of the year the deaths in the city numbered 4,987 more than those of the corresponding months of 1899. Of this increase, 2,053 were caused by acute inflammatory diseases of the organs of respiration, and the remainder, in all probability, by the depressing effect of the prevailing epidemic upon the course of other diseases. During the summer months the hot weather was much more severe and prolonged than in 1899, and as a natural consequence there were more deaths directly or indirectly caused by the heat. There were 294 deaths from sunstroke, against 141 in 1899, an increase of more than 100%, and yet the total excess of deaths in July, August and September of 1900 over 1899 (notwithstanding the increased population) was only 806, less than 5%, and from diarrheal diseases only 408, about 17%. There was an increase of about 50% in the deaths from measles, 25% from typhoid fever, and 10% from diphtheria and croup, these being no more than the normal variations to be expected from year to year, sometimes up and sometimes down, the totals in no case being large. There were 12 deaths from smallpox, against 18 in 1899." The death rate for 1900 was 20.53, as against 19.47 in 1899.

SMALLPOX. — The last monthly bulletin of the State Board of Health, issued January 3d, devotes considerable attention to the subject of smallpox. It says in part: "During the last three years we have had considerable experience with smallpox, commencing with an importation, in 1898, by a travelling theatrical troupe, among whose members the disease existed undiscovered until twenty localities in the western part of the State had been visited, and, as a result, smallpox was distributed in fourteen counties; not less than 320 persons took the disease, and a year passed before it ceased to exist. During this current year [1900] smallpox has been brought to seventeen places from outside. Now, towards the close of November, prior to which the State had been free for three months from this disease, a repetition of the experience of 1898 on a smaller scale is threatening, in the appearance of another travelling troupe of colored minstrels from the South, in whose personnel smallpox has been discovered after having exhibited at eight places in the eastern part of the State, in three of which, Albany, Schenectady and Gloversville, an outbreak has followed. There has also been a considerable outbreak in a locality in New York City which this troupe touched in passing. The present comparative immunity of this State from smallpox is chiefly due to very general vaccination, secured by health authorities, especially in places where the disease has developed, and more widely by the operation of the law, now several years in effect, requiring the vaccination of school children."

MORTALITY STATISTICS FOR NOVEMBER. — The Health Department's reports show a reduction in the city's mortality for November as compared with October, the death rate in the latter month being 17.54 against 16.82 in November. This is also a decrease from the death rate in November of 1899, which was 17.63. The most marked decline is in the class of diarrheal diseases, the weekly average of deaths from which was 21.75 in November and 51 in October. The weekly average of deaths from phthisis decreased from 169.25 to 145.5; of deaths from typhoid fever, from 24.5 to 21.75; of deaths from whooping cough, from 5.25 to 4.5, and of deaths from measles, from 2 to 1.25. On the other hand the weekly average of deaths from pneumonia increased from 122.5 to 155.25, the mortality from this disease thus exceeding that from phthisis. The weekly average of deaths from bronchitis increased from 26.25 to 37.75 and there was also a very slight increase in the mortality from diphtheria and cancer. The weekly average of deaths from scarlet fever was exactly the same in the two months. Three deaths in the month of November are attributed to influenza, this being the first time that this disease has appeared as a cause of death since last spring.

PAVILION FOR CONTAGIOUS DISEASES, RANDALL'S ISLAND. — At a meeting of the Board of Health held December 27th a resolution was adopted favoring the construction of a pavilion for contagious diseases in connection with the Randall's Island Hospital for Children, under the care of the Charities Department, and a committee was appointed to confer with Commissioner Keller, of that department, in regard to the matter. It appears that among children suffering from contagious affections (principally measles) who were transferred to the North Brother Island and Willard Parker Hospitals, the mortality has of late

been excessive. Out of 32 such patients no less than 18 died, and it is believed that the risks will be greatly diminished if this class can be treated in wards in the vicinity of, but at a safe distance from, the institution on Randall's Island.

Annual Meeting of American College Physical Directors. — The annual meeting of American College Physical Directors was held on December 28th and 29th at Columbia University. The following reports by the chairmen of a number of committees appointed last year were received: On the Advisability of Determining the Physical Condition of Candidates for Gymnastic and Athletic Exercise, Dr. Jay W. Seaver, of Yale; Strength Tests and Inspection of Instruments, Dr. Dudley A. Sargent, of Harvard; On the Adoption of Uniform Terminology and Nomenclature for Gymnastic Exercise, Dr. W. G. Anderson, of Yale; Credit for Gymnastic Training in College Work, Dr. W. A. Lambeth, of the University of Virginia; On the Relationship between Gymnastics and Athletics, Dr. W. G. Anderson, of Yale.

The Benefits of Modern Surgery. — Among the speakers at the annual meeting of the New York Orthopedic Dispensary and Hospital on January 4th were Bishop Potter and Governor Roosevelt. The former, in speaking of the benefits of modern surgery, stated that twenty-five years ago while in the Yosemite he met with an accident causing what he supposed at the time was a sprained ankle, and which had caused him more or less pain, attributed to gout, ever since. Within the past year he had found, through an x-ray examination at St. Luke's Hospital, that the trouble was in reality an ununited Pott's fracture.

Gift to the New York Ophthalmic and Aural Institute. — Dr. Herman Knapp has conveyed, as a gift to the New York Ophthalmic and Aural Institute, the two adjoining buildings on Twelfth Street which have been occupied for many years by the institution. It was founded by Dr. Knapp in 1869, and in addition to a dispensary and hospital has maintained a school of ophthalmology and otology.

New Ward for Tuberculosis at Bellevue Hospital. — A new ward, known as the Tuberculosis Pavilion, and accommodating 200 patients, was opened at Bellevue Hospital on January 1st, with three graduate nurses in attendance. There is still a considerable upheaval going on at Bellevue, growing out of the developments of the Hilliard case, and a vast amount of "investigating" is being done.

A Centenarian. — Mrs. Ann Jane Slote, of Brooklyn, was the first centenarian to die in 1901, her death occurring on January 2d. She was born in Ireland on July 12, 1800, and thus lived in three centuries. A son, Daniel, who died in 1882, was the "Dan" of Mark Twain's "Innocents Abroad."

Decrease of Smallpox. — In New York City fewer cases of smallpox have been reported during the past week than in the previous week, and as much as three days elapsed without a single new case. It is estimated that at least a million persons have been vaccinated since Thanksgiving.

New York State Medical Association's Journal. — This association has undertaken the publication of a monthly journal instead of annual transactions. The first number has been received.

Governor Odell Advocates Economy. — In his first annual message Governor Odell has advocated a number of radical changes, principally on the score of economy.

Opening of New Gouverneur Hospital. — The formal opening of the fine new Gouverneur Hospital of the Charities Department took place on January 5th.

Miscellany.

THIRD PAN-AMERICAN MEDICAL CONGRESS.

The Third Pan-American Medical Congress will be held February 4th to 8th, inclusive.

The steamer *Seguranza*, of the Ward Line, leaves New York, January 30th, arriving in Cuba on February 3d, the day before the beginning of the congress. The new Ward Line steamer *Morro Castle*, holding 135 cabin passengers, leaves Havana on February 9th, reaching New York February 11th. The round trip is $70. Any one going via this route will be absent from New York twelve days. All information regarding transportation may be had from Dr. H. L. E. Johnson, 1402 L Street, N. W., Washington, D. C. Any of the delegates going down by the Ward Line who desire it may, by a supplementary payment of $25, return via Santiago. This trip will take from ten to twelve days, during which time the passengers live on the ship and have their meals there if they so desire. The party goes from Havana by rail to Cienfuegos in one afternoon, there taking the steamer to Santiago and from Santiago to Nassau in the Bahamas, and from Nassau to New York. The stay in these different ports will be for a day or more.

An auxiliary committee of ladies will assist in the entertainment of ladies accompanying delegates. The best hotels in Havana are the Telegrafo, Mascotte, Inglaterra and Pasaje. Rates $3.00 to $5.00 per day for board and room, American plan, the prices depending on the room.

General Wood, the Governor-General of Cuba, formerly surgeon in the United States Army, will give a reception to the delegates, probably the day before the opening of the congress. He will also give orders that the fortifications of the island be shown to the delegates.

The sessions of the sections of the congress will begin on the morning of February 4th in the halls of the university and institute. In the evening the formal opening ceremonies of the entire congress, a general session, will take place at the Tacon Theatre, at which the various representatives of the different countries will be introduced, and speeches of welcome will be made by the officers of the congress as well as by the civil authorities.

According to present indications, it is judged that there will be about 1,500 delegates at the congress. Of these, probably 500 will be Cubans, 300 or 400 from the United States, 200 from Mexico, 100 from Argentine Republic and Uruguay, 50 from Brazil, 50 from Venezuela and as many more from Colombia and other countries.

It is requested that from this time on, titles of papers should be sent both to the general secretary of the congress, Dr. T. V. Coronado, 105 Prado, Havana, and to

the assistant U. S. secretary, Dr. Ramon Guiteras, 75 West 55th Street, New York City, in order that they may be entered in the final programme.

It is also requested that all physician delegates intending to go to Havana send their names to Dr. Guiteras, in order that he may determine how many will be present from this country.

Obituary.

GEORGE G. TARBELL, M.D.

IN the death of Dr. George Grosvenor Tarbell on December 31, 1900, the communities in which he lived, Boston and Lincoln, lost a most valuable citizen who was faithful in an extraordinary degree to all the duties of citizenship; the medical profession a member who had filled in a marked manner many posts of honor. He graduated from Harvard College in the Class of 1862, entered the Harvard Medical School at once and graduated from it in 1865, having been one year of that time a medical interne at the Massachusetts General Hospital.

In response to an urgent call from Governor Andrew for surgeons in the Civil War, he became assistant surgeon and later surgeon of the Third Massachusetts Cavalry and served to the close of the war. He was a member of the Loyal Legion. In May, 1866, he began practice in Hingham, but removed to Boston in 1867. In April, 1868, he was appointed physician to out patients at the Massachusetts Hospital, and visiting physician in 1873. Years of most conscientious service he gave to the hospital; his advice and counsel were always valued by his colleagues. In the prime of his life, and ripe with experience and study of his cases, he resigned in 1891, not because he was weary in the service, but that the large clinical material in his wards could thereby be used in teaching the students of the Harvard Medical School, of whose teaching board he was not a member. He was then appointed by the trustees a consulting physician, which position he held at the time of his death. For many years he was one of the trustees of the Lincoln Public Library, whose fine building was given to the town by his uncle, Mr. George Grosvenor Tarbell, in 1884. To this institution he gave faithful and efficient service, and was president of the Board of Trustees at the time of his death.

Not alone in the practice of his profession was Dr. Tarbell a valued counsellor. Years of his life were given to the Massachusetts School for the Feeble-Minded. He became assistant superintendent of the school in January, 1878, and resigned in 1883. He was the executive head of the school for that period. He brought new life to the school; buildings were repaired, new school rooms and dormitories were built and an entirely new standard of work was established. In his early reports he strongly advocated the removal of the school from South Boston to the country. One year after his resignation as assistant superintendent he was made president of the Board of Trustees. Largely through his efforts the present site of the school at Waltham was secured by the State in 1886. The location was practically selected by him. His time and thought were given liberally to the preparation of the plans for the new buildings. He watched and directed every detail of arrangement and construction. Dr. Fernald, the present superintendent, writes: "I cannot express what Dr. Tarbell was to the school. His intimate knowledge of the 600 inmates and 120 officers and employés was such that he could call most of them by name. . . . Few of his friends knew how much time and thought he gave to the school. . . . He had attended every Christmas festival since 1878, except one when he was himself sick. The grief and sorrow of the unfortunate children at his death was most touching. . . . In his death they have lost their best friend."

The present institution, with the farm at Templeton, is a monument to his good judgment and painstaking care.

Correspondence.

THE ARMY BILL AND THE MEDICAL DEPARTMENT.

CINCINNATI, O., December 29, 1900.

MR. EDITOR: — Permit me through your columns to call the attention of the members of the American Medical Association to the fact that there is at present pending in Congress certain proposed legislation that seriously disturbs the present status and efficiency of the medical corps of the United States Army.

The proposed law is entitled, "An Act to Increase the Efficiency of the Military Establishment of the United States" (Senate Bill 4,300), and in a very general way modifies the existing organization of the army, while at the same time it provides for a damaging and offensively invidious discrimination against the medical corps. This fact is shown in the following particulars, namely: (1) It decreases the percentage composition of the corps in the grades of colonel from 3.1% to 2.4%; (2) it decreases the percentage composition of the corps in the grade of lieutenant-colonel from 5.2% to 3.7%; (3) it decreases the percentage composition of the corps in the grade of major from 26% to 18.6%; (4) it increases the percentage composition of the corps in the grade of assistant surgeon with the ranks of captain and first lieutenant from 65% to 74.7%.

The significance of these proposed changes can be understood when it is remembered that even under the existing law it requires more than eighteen years to reach the grade of surgeon with the rank of major, while under the proposed law it will require, at least, twenty-five years to reach the same grade and rank. With this fact reduced to a mathematical demonstration, the inevitable result will be (1) that the most worthy young men will not apply for commission, and (2) that the relatively less worthy men, who do enter the service, discouraged by the certain impossibility of reasonably prompt promotion, will resign, leaving their places to be filled by untrained and consequently less efficient men. The ultimate disaster from this contemplated change, however, will consist not alone in a lowered status of the medical service, but in (1) increased disease and death rate among the men; (2) a diminished and otherwise weakened force in the firing line, and (3) a material augmentation of the pension roll.

In view of the foregoing facts, and, in view of the fact that every other corps of the army is better graded than is the medical, every member of the American Medical Association and every member of the medical profession, is hereby earnestly solicited to send at once to his United States senator and congressman an urgent and emphatic protest against the proposed provisions in Senate Bill 4,300, relative to the medical corps of the United States Army.

(Signed) CHAS. A. L. REED, M.D.,
President American Medical Association.

[The JOURNAL has already referred to the question in an editorial, December 20th, page 643.— ED.]

CLIMATE IN PULMONARY TUBERCULOSIS.

BOSTON, January 4, 1901.

MR. EDITOR: — Since it has become evident that patients in the early stages of pulmonary tuberculosis may recover in any climate by proper hygiene and treatment, especially by outdoor life, and more especially in sanatoria, it seems as if there was danger that the climatic factor in treatment be overlooked or disregarded.

This, it seems to me, is unfortunate, for if there is any climate in which patients formerly recovered by simple

residence with little or no change in their daily life or occupation, it is certainly reasonable to infer that with modern methods of treatment they will recover more quickly and surely in that climate than if these methods were employed in one of poor conditions.[1]

Therefore I think that while we can encourage poorer patients in the hope that they may recover at or near home by entering a sanatorium or even simply by leading an outdoor life, we are not doing our duty to those who can afford it, if we do not advise them to put themselves in the very best climatic conditions known, namely, especially dry air and sunshine.

Although in their enthusiasm over the results of sanatorium treatment in what would be designated as poor climates some heads of institutions have gone so far as to say that they believe that dryness or moisture has nothing to do with the arrest of the disease, I think that the evidence is to the contrary. Sunshine is still considered desirable by all, and a climate with two or three times as many sunshiny days in a year as another must, other things being equal, be superior. The only satisfactory test of the real comparative value of climatic factors will come when sanatoria shall be established with exactly the same rigid rules of admission and the same methods of treatment all over the world, in what have been considered the best climates as well as in the poorest.

If we know that for any reason a patient cannot put himself in the best possible climatic conditions, the subject need not be mentioned to him, but if we know that he can do so, the best course can be none too good to advise in treating this still very formidable disease. I have seen many recoveries from pulmonary tuberculosis under all conditions, at home with or without change of mode of life or occupation, and in all kinds of health resorts and institutions, but for quickness and thoroughness of recovery in properly selected early cases nothing in my experience approximates that which occurs in dry, sunshiny climates.

While I usually mention several alternate plans to a tuberculous patient, by adopting either one of which a possible arrest of the disease may be brought about, I state very decidedly my opinion of their relative value in his case, and throw the responsibility of choosing anything but the best upon him. He should at least be offered the best.

It should be borne in mind also that there are many delicate patients, especially those with advanced disease, to whom outdoor treatment in a rigorous climate may mean great suffering.

Yours respectfully,
FREDERICK I. KNIGHT, M.D.

[1] In using the statistical results of sanatorium treatment for comparative purposes, it must be borne in mind that some sanatoria receive only the most carefully selected incipient cases, and that the percentage of cures among such patients cannot properly be compared with that in institutions or health resorts where patients in all stages of the disease are received.

OCULISTS AND OPTICIANS.

MEDFORD, MASS., November 23, 1900.

MR. EDITOR:—Several years ago, laws were enacted pertaining to the "Regulation of the Practice of Medicine within the Commonwealth of Massachusetts"; and even though we observe the enforcement of said laws by the Board of Registration of Medicine to a degree of merit, it would seem, however, that such laws have no existence, when we see the daily advertisements of the would-be specialists whose practice consists in the treatment of the optics.

Opticians have ventured into the field, advocating their competency (?) to examine the eyes, and assume to correct the errors of refraction without any knowledge of the anatomy of the eye. Department stores, also, have fallen into the line, adding further pretence and quackery to an innocent public; which is as absurd as it is ridiculous, for the simple reason that neither the optician nor the vender at the department store have any training in the knowledge of diagnosis relating to the science of opthalmology wherewith to ascertain the conditions of the eyes and the eyesight; and no person is fitted or competent for such a responsible practice other than he who has fulfilled the requirements of a reputable college or university, and obtained the degree of M.D., and devoted special study to ophthalmology.

This is a serious matter, to which I have applied much attention during the past two years; and during the intervals of my investigation, I have met many subjects who have been duped by opticians, peddlers and department stores, whose eyes have been almost ruined from the ill effects of improper lenses, which upon the day of purchase appeared to be correct.

To the oculist alone belongs the propriety, professionally and legally, to examine the optics, and to prescribe the proper remedy which will be the result of his diagnosis. On the other hand, the part of the optician is simply a mechanical procedure, and to supply glasses, according as the physician may prescribe them for his patient.

The physician by his skill and knowledge of ocular therapeutics should always be the proper counsel to approach to realize the best results when there appears to be trouble with the eyes.

Medical authority emphasizes the importance of consulting the oculist, and not the optician, in all matters pertaining to the optics, and it is not generally considered that there is an absolute distinctive difference between the oculist and the optician which should be carefully dealt with.

This is an instance which, for the protection of the public, appeals to the colleges of pharmacy for immediate investigation, and to proceed to the inauguration of the requirements in the study fitting graduates as opticians, as well as pharmacists; and an eligible course cannot fail to involve the sanction and co-operation of the medical profession universally, and the hearty approval of all mankind.

History tells us that it was not until the year 1854 that any attempt was made by the medical profession to estimate visual power. The result of the problem led to more persevering attainments, until finally a science has developed through the diligent study of specialists, who by their fertile brains have become authors, and merited fame throughout the world, and given to our colleges and universities many volumes of valuable textbooks, treating exhaustively upon the subject of ophthalmology.

See to it, then, that this matter is dealt with as as it should be, and, if necessary, let there be legislative means established to restrict peddlers, opticians and department stores from trifling with the optics by prescribing eyeglasses or to attempt to offer any support to aid defective vision.

Superintendents of public schools in many of our cities and towns have interested themselves most creditably in the importance of observing the impaired sight of pupils by the co-operation of teachers in the respective grades; and if there be any among them with abnormal vision they are at once directed to consult a competent physician or oculist to obtain the remedy and necessary assistance for correct vision.

The optician is not recognized other than in his proper sphere when he is called upon to supply lenses as per prescription. Therefore, I trust that what I have written will at once awaken an interest for the individual care, thought and study that finally will result in a protection against unscrupulous quackery, and be endorsed for the public good.

Would it not be well for practitioners in pharmacy to review this subject as a very important adjunct, and express their views to encourage the faculty at the Massachusetts College of Pharmacy to become interested, pursuant to adopting a course of study for pharmacists to become opticians?

Respectfully,
JAMES E. MCKEON,
Pharmacist and Optician.

METEOROLOGICAL RECORD

For the week ending December 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A.M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..23	30.09	45	56	34	82	82	82	S.W.	S.	18	15	O.	O.	
M..24	29.82	52	59	44	88	86	87	S.W.	S.W.	11	9	O.	C.	.23
T..25	29.80	40	45	36	82	57	70	W.	S.W.	9	14	C.	O.	
W..26	29.90	32	38	25	82	52	67	S.W.	W.	10	20	F.	C.	
T..27	30.19	28	34	21	59	54	56	W.	W.	9	8	F.	C.	
F..28	29.90	32	39	26	66	83	74	S.W.	W.	12	12	O.	C.	.03
S..29	29.97	30	36	24	68	74	71	W.	S.W.	10	13	C.	C.	

☞

* O., cloudy; C., c'ear; F., fair; G., foz; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 29, 1900.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1183	298	21.71	20.28	1.35	1.69	3.46
Chicago . . .	1,698,575	—	—	—	—	—	—	—
Philadelphia .	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	196	45	22.95	20.91	5.10	2.04	3.06
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	122	33	35.21	17.21	3.27	17.20	3.27
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—
Providence . .	175,597	72	17	27.80	22.24	4.17	2.78	2.78
Boston . . .	560,892	200	43	26.00	16.50	—	6.00	6.00
Worcester . .	118,421	38	9	26.30	7.89	5.26	7.89	—
Fall River . .	104,863	—	—	—	—	—	—	—
Lowell . . .	94,869	39	10	10.24	28.16	—	—	2.56
Cambridge . .	91,886	23	6	17.40	4.35	—	—	8.70
Lynn	68,513	—	—	—	—	—	—	—
Lawrence . .	62,559	24	10	4.17	8.34	—	—	—
New Bedford .	62,442	36	9	25.02	16.68	—	2.78	—
Springfield .	62,059	12	6	16.66	25.00	—	8.33	—
Somerville . .	61,643	19	3	21.04	10.52	—	—	—
Holyoke . . .	45,712	12	2	33.33	8.33	—	8.33	16.66
Brockton . .	40,063	9	1	11.11	11.11	—	—	—
Haverhill . .	37,175	13	1	30.76	15.38	—	—	7.69
Salem	35,656	15	4	13.32	6.66	—	—	—
Chelsea . . .	34,072	16	5	12.50	—	—	—	—
Malden . . .	33,664	4	1	25.00	—	—	—	—
Newton . . .	33,587	14	5	21.42	7.14	—	—	7.14
Fitchburg . .	31,531	4	3	—	—	—	—	—
Taunton . . .	31,036	14	3	28.56	14.28	—	7.14	—
Gloucester . .	26,121	6	1	16.66	—	—	—	—
Everett . . .	24,336	5	2	40.00	—	—	—	20.00
North Adams .	24,200	6	2	—	—	—	—	—
Quincy . . .	23,899	4	—	50.00	—	25.00	—	—
Waltham . . .	23,481	13	5	7.69	23.07	—	—	7.69
Pittsfield . .	21,766	—	—	—	—	—	—	—
Brookline . .	19,935	3	—	33.33	33.33	—	—	—
Chicopee . .	19,167	7	4	28.56	42.84	—	14.28	—
Medford . . .	18,244	4	—	—	—	—	—	—
Newburyport .	14,478	—	—	—	—	—	—	—
Melrose . . .	12,962	2	—	—	—	—	—	—

Deaths reported 2,121; under five years of age 529; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 485, acute lung diseases 396, consumption 248, diphtheria and croup 74, typhoid fever 66, diarrheal diseases 36, whooping cough 17, scarlet fever 12, cerebrospinal meningitis 7, measles 6, erysipelas 6.

From whooping cough New York and Pittsburg 5 each, Boston 3, Clinton 2, Chelsea and Everett 1 each. From cerebrospinal meningitis Worcester 3, New York 2, Boston and Gloucester 1 each. From scarlet fever New York and Boston 4 each, Baltimore, Pittsburg, Worcester and Somerville 1 each. From measles New York 5, New Bedford 1. From erysipelas New York 2, Lowell, Haverhill, Chelsea and Newton 1 each. From typhoid fever Pittsburg 21, New York 19, Boston 12, Baltimore 4, Worcester 3, Providence 2, New Bedford, Springfield, Holyoke, Taunton and Chicopee 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,296, for the week ending December 15th, the death rate was 16.8. Deaths reported 3,744: acute diseases of the respiratory organs (London) 349, diphtheria 77, whooping cough 68, fever 58, measles 49, scarlet fever 42, diarrhea 34.

The death rates ranged from 8.6 in Norwich to 22.2 in Manchester; Birmingham 16.5, Bolton 21.3, Bradford 16.3, Cardiff 12.9, Croydon 11.9, Derby 15.0, Gateshead 20.0, Halifax 12.4, Hull 19.9, Leeds 17.5, Liverpool 20.0, London 16.5, Newcastle-on-Tyne 17.4, Nottingham 22.1, Plymouth 16.8, Portsmouth 13.6, Salford 17.7, Sheffield 18.7, Swansea 15.8, West Ham 12.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 5, 1901.

R. P. CRANDALL, surgeon, detached from the U. S. training ship "Constellation," upon reporting of relief, ordered to temporary duty in connection with recruiting at Milwaukee, Wis., and then home to wait orders.

W. A. MCCLURG, surgeon, detached from the "Indiana" and to Naval Training Station, Newport, R. I., as the relief of Surgeon R. P. CRANDALL.

J. M. BRISTER, assistant surgeon, ordered to the "Independence," January 13, 1901.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 3, 1901.

PURVIANCE, GEORGE, surgeon. Relieved from duty at Baltimore, Md., and directed to proceed to Washington, D. C., reporting at the bureau for duty. December 29, 1900.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Shreveport, La., for special temporary duty. December 28, 1900

STIMSON, W. G., passed assistant surgeon. To proceed to Denver, Col., for special temporary duty. January 1, 1901.

BROWN, B. W., passed assistant surgeon. Relieved from duty at Cape Charles Quarantine and directed to proceed to Baltimore, Md., and assume command of the service, relieving Surgeon GEORGE PURVIANCE. December 29, 1900.

WILLE, C. W., assistant surgeon. To assume temporary command of Cape Charles Quarantine, relieving Passed Assistant Surgeon B. W. BROWN. December 29, 1900.

AMESSE, J. W., assistant surgeon. On being relieved by Assistant Surgeon L. P. H. BAHRENBURG, directed to proceed to Manila, P. I., and report to chief quarantine officer for duty. January 2, 1901.

LLOYD, B. J., assistant surgeon. Granted leave of absence for eighteen days from December 11th. January 3, 1901.

BAHRENBURG, L. P. H., assistant surgeon. Bureau order of December 27, 1900, directing Passed Assistant Surgeon Bahrenburg to proceed to Manila, revoked; and directed to proceed to Honolulu, H. I., reporting to the chief quarantine officer for duty. December 31, 1900.

BREADY, J. E., acting assistant surgeon. Granted leave of absence for four days from January 2, 1901. December 28, 1900.

KOLB, W. W., hospital steward. Granted leave of absence for thirty days from January 29th. January 2, 1901.

OLSEN, E. T., hospital steward. Granted leave of absence for five days. January 2, 1901.

CASUALTY.

A. R. BOOTH, acting assistant surgeon, died at Shreveport, La., December 27, 1901.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene will hold a regular meeting on Wednesday, January 16, 1901, at the Boston Medical Library Building, 8 The Fenway, at 8 P. M. The meeting will be held in Sprague Hall, in the rear of the first floor of the building.

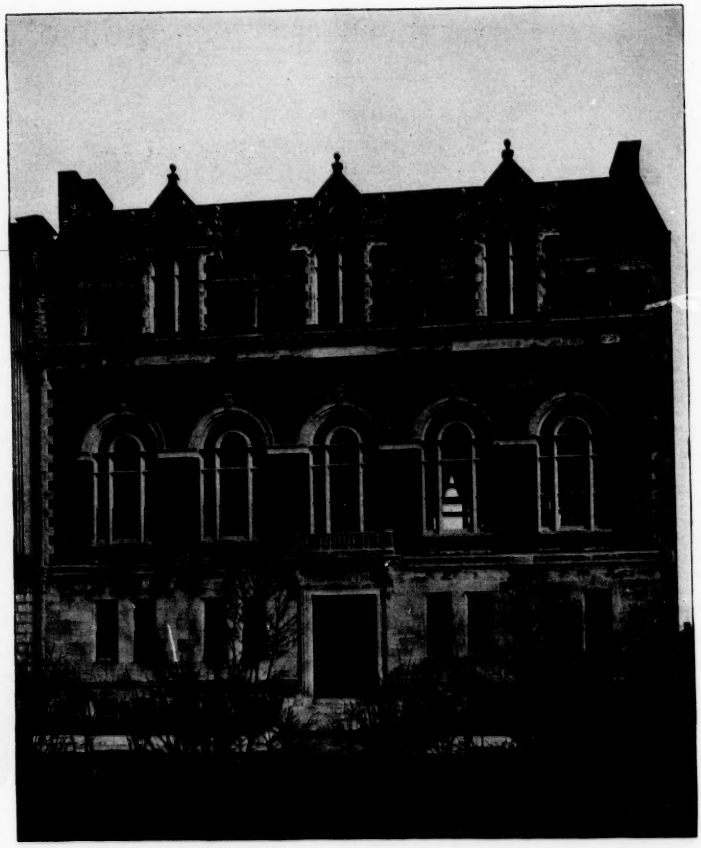
At 8 o'clock: Drs. F. W. White and Maynard Ladd will present a paper entitled "Whey Cream Mixtures in Infant Feeding."

At 8.15 o'clock: Drs. W. N. Bullard and C. W. Townsend will present a paper entitled "Convulsions in Children." Discussion by Drs. Rotch, Wentworth and Morse.

HENRY F. HEWES, M.D., *Secretary.*

RECENT DEATH.

R. V. K. MONTFORD, M.D., clerk of the Board of Education and superintendent of the public schools of Newburgh, N. Y., died on December 28th. He was born in Fishkill village in 1835 and served as surgeon of the 124th Regiment, New York Volunteers, throughout the Civil War. He had been connected with the Newburgh schools for nearly thirty years.



THE NEW BUILDING OF THE BOSTON MEDICAL LIBRARY.

Addresses.

DEDICATION

OF THE

NEW BUILDING OF THE BOSTON MEDICAL LIBRARY.[1]

ADDRESS

BY

DAVID W. CHEEVER, M.D., LL.D.,
President of the Boston Medical Library Association.

MEMBERS OF THE BOSTON MEDICAL LIBRARY, OUR INVITED GUESTS, LADIES AND GENTLEMEN: — By the liberality of many citizens, women as well as men, whose gifts we gratefully acknowledge, and by the free offerings of our professional brethren, we have erected this commodious and safe depository for our medical library. It is with a peculiar feeling of thankfulness that I officially welcome here the physicians of Boston and of New England. The object for which we have striven is so vital to our welfare that a certain solemnity is appropriately mingled with our gratitude. Over and over again, in these later years of financial prosperity, have we seen vast schemes of benevolence, of religion and of education begun and finished promptly by the munificence of a single wealthy citizen. Such has not been our good fortune. We have received but one large gift and that from a lady who wishes to remain unknown.

"*Inter tedia et labores*," literally, have the doctors toiled to make this library and to give it a safe and suitable building. Our librarian will detail to you, as he alone can do, the long years of effort by which he has raised this to the fourth place among the medical libraries of this country.

It is my simple duty to welcome you here, and to recount, briefly, the importance and the advantages of our work.

A medical library is peculiar in that it must also be a contemporary and a periodical library. The present is even more valuable to it than the past, although the records of the past are inestimable. It has been well said that the burning of the library of Alexandria set civilization back through all the centuries of the Middle Ages. So, were all records of medicine blotted out, the next generation of doctors would begin as children over again. What has been discovered has been recorded, and were that lost, humanity would be reduced to the rough medical practice of the savage. It is impossible to set a money value on medical science, and without the records of science, there would be no medical art. Were anatomy, physiology and pathology lost, we should be groping in the first footsteps of ignorance. Were the history of all diseases, recorded in our books, destroyed, we should be only children as observers. But to the younger doctors who listen to me it will appear that the present is all important. And if we were suddenly deprived of the knowledge acquired in the last fifty, twenty, or even ten years, what a change would come over medicine! Anesthesia, antisepsis and bacteriology are now the paramount factors of all our progress. And the peculiarity of this species of knowledge is that it is ephemeral; it lives but a day; it is not lost, but its seeds germinate in new discoveries the next day. What we know today may be obsolete tomorrow, simply because it is subject to daily investigation and daily modification.

This form of knowledge requires an ephemeral literature to record it. The monthly, the weekly periodical supply this knowledge. Hence the importance of a periodical library in medicine. More than five hundred such publications are taken here; read here; preserved here in files. This, then, constitutes a most valuable part of our library.

To allow the busy doctor and the student an opportunity to use this knowledge, it must be rendered accessible in commodious and quiet rooms, for reading, writing, excerpting. In our fine halls we can now offer the wisdom of the older authors, and the discoveries of almost every hospital and clinic and school in the world. Special subjects can be searched and exhausted; and the hurried doctor can drop in for half an hour and find the facts he is in search of, speedily and surely.

This is not all our function. A meeting house for physicians is also here provided; a medical centre, where professional intercourse will be aided by social features also.

I believe that the future influence of this Boston Medical Library on the doctors of New England will be beyond computation, in advancing science, softening prejudices and modifying opinions.

In 1874 six physicians met in the office of the late Dr. Henry I. Bowditch, and laid the foundation of this library association. Three of these gentlemen still serve us: Dr. F. I. Knight, as vice president; Dr. O. F. Wadsworth, as clerk; Dr. James R. Chadwick, as librarian. We may fittingly recall, also, that our assistant librarian, Dr. Edwin H. Brigham, is still in charge; having faithfully filled that office since 1875. Mrs. Collins, our cataloguer, has served us well for twenty-two years. Such permanence and reliability have been great helps in our progress. In 1877 an act of incorporation was obtained. Twelve of the fourteen original incorporators survive. We have lost three presidents by death: Dr. Oliver Wendell Holmes, presiding from 1875 to 1888; Dr. Hodges, presiding from 1888 to 1890; Dr. Minot, presiding from 1890 to 1896.

A quarter of a century has elapsed, and we have moved from Hamilton Place to Boylston Place, and thence, here. In this chaste and appropriate edifice we now are domiciled. That it is so well constructed we owe to the good taste of the architects, Messrs. Shaw & Hunnewell, aided by the suggestions and the oversight of our building committee, Drs. J. Collins Warren, J. R. Chadwick, Farrar C. Cobb. It is a noteworthy fact that we have completed our building for less than the estimated cost. This is unusual; and we owe it largely to the prudent management and practical knowledge of Dr. Farrar Cobb, whose experience in building a large hospital has well served him and us.

The young men in our ranks have pushed us on, and furnished that spur of enthusiasm which conservative age sometimes lacks. We owe also much of our financial success to the tact of our committee to solicit subscriptions, of which Dr. John Homans, 2d, is chairman. I consider that we have made a financial success, because we have collected by subscription about $73,000.

[1] Saturday, January 12, 1901.

We have paid out $125,000; and $15,000 will complete our building and furnishing; thus bringing the total cost up to rising $140,000. Sixty-seven thousand dollars are still due; but we have $25,000 to meet this, in land we own, unsold, leaving a balance of debt of $42,000. We have mortgaged this library, building and land, for $50,000.

Our younger members have generously guaranteed the interest on $25,000 for five years. And this leaves us a yearly burden of interest of about $1,000. We are not so badly off then. Fifty thousand dollars would clear us of debt.

But looking forward to the future we need an endowment to buy books. Many physicians have given us their libraries; others will do so as time goes on. But we need modern contemporary books. We ought to have on our shelves every modern treatise and textbook, in English, French or German, as soon as published; medical students and doctors alike need this. The interest of a modest sum would buy all the new books worth buying. We need a fund with a yearly income to enable us to receive students freely; to give them a room to themselves. We want students to come here as well as doctors, and we want to be able to give them good facilities for study.

Our hall for business meetings has been beautifully fitted up in memory of Dr. Richard Sprague, by his mother and by the Hon. C. F. Sprague. Mrs. Fifield, the widow of our late genial associate, has furnished a room, as a memorial. Holmes Hall speaks for itself. I need not describe its excellence. Would that some one might decorate and furnish the hall we occupy this evening. From the walls of Holmes Hall, from other rooms, look down upon us the portraits of many of our medical forefathers and teachers: The Warrens, Bigelows, Jacksons, Homans, Shattucks, Wymans, Bowditchs, Cabots, Putnams, Storer, Ellis, Buckingham, Holmes! How can I cease the enumeration? These were scholarly doctors. We need to continue this patrician *Gens*. Science enlightens, but does not wholly satisfy; the humanities in education soften manners, nor allow them to be harsh.

The moral effect produced on the patient and the community by the learned, as well as gentlemanly, physician, is great and wholesome. Let the doctor cultivate books, and let the influence of this library help him to do so.

It is now my privilege to introduce to you our librarian. If any one man were named who had collected and created our library, it is he. He is a bibliophile, who travels over Europe with a list of missing numbers always in his pockets. Persistent as the bee, he never comes home without honey.

ADDRESS

BY

JAMES R. CHADWICK, M.D.,
Librarian of the Boston Medical Library.

"*Horæ periunt et imputantur.*" "The hours perish and you must account for them." These words, taken from the sun-dial at Oxford University, seem to express the sentiment with which you give me your attention today, when I speak to you, fellow-associates, in the name of the governing body of this library. Hours have lengthened into days, days into years, and years have spanned the quarter of a century, since you laid upon our shoulders the burden of creating and building up a library to meet the wants of our profession in this community. Most of us have become silverites in the process of time and regard the ratio of sixteen to one as very moderate. A few are in position to follow the example of a friend of mine, who has discarded a brush and comb from his toilet set and claims that all he needs to do in the morning is to dust off the top of his head. A few, happily but few, of our early collaborators have fallen by the wayside and are no longer with us today to enjoy the full consummation of their efforts. I cannot mention them all; you know them — the impetuous, high-minded Bowditch, the beneficent Shattuck, the quiet, persistent Ellis, the sturdy Buckingham, the erudite Fifield, that dazzling genius Bigelow, and among the younger men, the scholarly Curtis, the wise Hooper, the wholehearted, witty Wigglesworth.

Last to be mentioned, but first in all your minds today, is he who lent us the prestige of his name at the inception of our undertaking — Oliver Wendell Holmes, our first president, litterateur, poet, wit, and for thirty-five years professor of anatomy at the Harvard Medical School. Our debt to him can never be paid, but we intend to keep it alive in our memory by dedicating to him our principal reading room, to be known through all time as Holmes Hall. His bust in bronze, a replica of that made by R. E. Brooks for the Boston Public Library, looks down upon us from over the mantlepiece at one end, his portrait by Billings at the other. We have many mementoes of him scattered through the hall; the latch of the house in which he was born; the earliest known portrait of him, a daguerreotype taken by Whipple & Hawes about 1845; his fist cast in bronze for me by the sculptor, T. H. Bartlett, with regard to which the latter tells an amusing and characteristic story. When Dr. Holmes was asked if he would hold a pen while the mould was being made, he said, "No," doubling up his fist like a prizefighter's. "Take it that way, which does not show the wrinkles of old age, does it?" His medical library of nearly 1,000 volumes, including many superb tomes of anatomical plates in which he took the keenest delight, will there find a suitable abiding place in accordance with his dying bequest in 1894.

In his poem "To the Portrait of a Lady" he says:

> "I love sweet features; I will own
> That I should like myself
> To see my portrait on a wall,
> Or bust upon a shelf;
> But Nature sometimes makes us up
> Of such sad odds and ends,
> It really might be quite as well
> Hushed up among one's friends."

His wish is gratified by us, his friends.

Happily, some of us, men of '75, survive to enjoy the pleasure of this moment, when we welcome you to the regal abode which your bounty has provided, in recognition of the library which our labors have brought together.

"The longest life" is said to be "a parcel of moments," so the largest library is but an aggregation of individual books. Exclusive of duplicates for home circulation, we have today upon our shelves about 33,000 volumes and 30,000 pamphlets; yet these figures give but a partial idea of our resources. To make this more clear I must bring to your minds the

change which time has brought about in the literature of medicine. Without dwelling upon the ponderous tomes in which was buried the medical lore of the early centuries after the discovery of printing, which your orator and president of twenty-two years ago dilated upon so learnedly and so wittily, I would ask you to come with me for a moment into the market place of Venice in the early part of the sixteenth century to scan a document, written in a legible hand, posted there and elsewhere in the city, for the perusal of those merchants who chose to pay a *gazzetta* for the privilege. You would find that it gave the news brought back to Venice by some one of its adventurous captains, who had strayed beyond the limits defined in his rude chart, and made another land discovery in the far West or the far South. "The arrival of the ship in the Adriatic, the contents of its cargo, the price of commodities abroad, together with some account of a newly discovered island, its wonderful people and marvellous products would form the staple of the news-sheet of the hour."

When in 1536 the Venetian possessions in the East were attacked by the Turks, the first regular monthly journal was established by the government to supply news from the fleet, and men were paid to read the particulars at the principal points of the city, but no sheets were issued except such as were sanctioned by the Doge and his council. The officials were so jealous of the printing press, however, that it was nearly fifty years after this time that the first printed newspaper was published in the city and dispersed every month into most parts of Christendom.

It is probably true, as claimed by the Germans, that their nation was the first to actually publish a printed newspaper, a certain *Relation*, which appeared in Strassburg, fifty-two numbers of which, dating from the year 1609, are preserved in Heidelberg. The *Frankfurt Journal* was not published until 1615; the first English paper, the *Weekly News*, in 1623; the first French journal in 1630.

Be that as it may, the now universal *Gazette* is seen to have come from the small coin originally paid for the perusal of its manuscript predecessor. From this modest beginning has developed the enormous mass of periodicals which characterize the literature of medicine and most other branches of science at the present day. In medicine the greater part of this change has taken place in the nineteenth century.

When six of us young men met on December 21, 1874, to discuss the possibility of founding this library, and when we actually did found it on August 20, 1875, we were fully cognizant of this change that was rapidly taking place in the character of medical literature; we knew that the era of theories and systems in medicine was being pulverized into nothingness by the accumulation of crude facts and that these facts were to be found chiefly in periodical literature. Periodicals were then increasing at so rapid a rate that few private individuals could afford to obtain, or even give, them shelf room.

We did not at that time foresee that this difficulty was to be increased a hundredfold, not merely by the multiplication of individual periodicals — great as that might become — but by the publication of a colossal index to all previous medical literature, including every article in every one of the numerous periodicals.

In 1879 the library of the Surgeon-General's Office in Washington, under the charge of an army surgeon, Dr. John S. Billings (whose presence here today is a fresh manifestation of his warm interest in our library), began the publication of an index catalogue of its collections, which comprised practically all medical literature up to that date. The first series of sixteen volumes, quarto, was completed in 1895; the new series comprising accessions since the publication of the first series has already reached the fifth volume.

Its value to medical scholars is inestimable, superseding, as it does, all the time-wasting labor that used to be expended in bibliographical research. By its aid we obtain a reference to every rare case that has been recorded since printing was discovered in A. D. 1450. But by indexing the articles and reports of cases in every periodical, past and present, obscure and famous, this catalogue has immensely extended the scope of medical research and created a demand for an array of books, and especially of periodicals, that is simply appalling.

I have dwelt at some length on this peculiarity of the medical literature of the present day that you might understand why it has been the constant aim of your librarian, during the past twenty-five years, to complete the files of all the important periodicals. His efforts have been attended with such success, despite the small funds at his disposal, that more than half of the volumes upon our shelves belong to that category. We are able to supply about seven-eighths of all the references to current literature demanded by our readers, even though they avail themselves of this great universal index.

It may pertinently be asked how our association, with practically no invested funds, has been able to achieve such results in the accumulation of books; for the table of curves suspended above me shows that in twenty-five years we have been able to outstrip many of the libraries which antedate us by many years in their foundation. Our library is already the fourth in size in the country, being exceeded only by that of the Surgeon-General's Office in Washington, that of the College of Physicians in Philadelphia, and that of the Academy of Medicine in New York.

I will tell you briefly. In the first place, we were fortunate enough to secure, at the onset, the custodianship of the libraries of all the societies pre-existing in the city. In the second place, most liberal contributions were made to us by many private individuals. In the third place, the completeness of our files of journals and transactions I attribute largely to the existence of the volume which I hold in my hand, my "want book," wherein, upon the left-hand page, is entered every periodical of which we have any part, while on the opposite page is entered every volume or number needed to complete the file of that particular journal. By invariably carrying this with me upon my travels in this country and Europe, I have been able gradually, at a trifling expenditure of money, to complete the files of all the leading periodicals of the world. I submit this to your special attention if you wish to know how to build up a medical library with practically no funds for the purchase of books.

So much for our accomplishment in the chief purpose for which we were brought into being. In some other ways we are making ourselves of use to the profession and to the community. For over twenty years we have been conducting a Directory for Nurses, which has been of immense value in putting,

at the shortest possible notice, the nurses of the State into communication with the physicians and their patients who wish to secure their services. Incidentally we have been able to raise the standard of nursing by putting a premium upon competence and training.

We have added to the amenities of professional life by supplying suitable halls for the meetings of the various medical societies and by hanging upon our walls the portraits of past worthies.

Within the past month we have received from Dr. Horatio R. Storer, of Newport, R. I., formerly of Boston, the gift of a most remarkable collection of medical medals, numbering 2,300 pieces. Only two other collections exist in the world at all commensurate with this, that of Dr. Joseph Brettaur, of Trieste, and that belonging to the library of the Surgeon-General's Office in Washington. Of the six other great collections that have been formed during the past two centuries, all have been scattered except that of Rueppelli, which was bequeathed to the Sankenbergische Gesellschaft of Frankfort. Considered either from its historic interest, its esthetic merits, or its pecuniary value, I consider this gift as the most noteworthy that this association has thus far received. It is to be known as the Storer Collection of Medical Medals in memory of Dr. D. Humphreys Storer, the father of the donor, and is to be in charge of a son of the donor, Dr. Malcolm Storer, an accomplished numismatist.

We have a collection of many thousand autograph letters of past and present medical writers and practitioners, only awaiting the appearance of a custodian with time and enthusiasm to classify them and thus make them available to students of history at its original sources.

To recapitulate briefly: We started in, twenty-five years ago, with the one purpose of supplying the needs of the medical profession in the way of literature properly catalogued and otherwise made available to all students. The gift of this spacious building from the profession of this city is the best evidence that we have achieved our purpose. Shall we rest contented with the laurels which we have won? I venture to hope not. I think that we acted wisely in limiting the expenditure of our energies and of our money to the one purpose of building up a library, so long as that was the one thing most needed in the city. Now that we have secured the library and the best equipped building in the country in which to store it, we may properly consider whether the time has not come to enlarge the scope of our functions by assuming the rôle of a society in addition to that of a library.

A rich merchant of Athens gave the use of his house and gardens on the outskirts of that city to several philosophic friends for the site of their reunions. There Plato instructed his numerous disciples. This place was called "Academy" from the name of the owner, Academus. Cicero gave the same name to his country place near the lake of Avernus and devoted it to the same purpose. Now that we have a similar spacious domicile, surrounded by gardens, which we owe to the munificence of the city, I would propose that we follow the example of our remote ancestors and invite our philosophic brethren to hold their reunions in our halls, not as guests merely, but as integral parts of our association, and that we assume the name as well as the obligations of an academy.

It is not merely on account of the archeological parallel, over which my fancy thus plays, that I make this proposition to extend so radically the sphere of our activity. I have watched for many years the careers of similar institutions in other cities and have come to believe that the conjunction of the double attributes of a library and a society much more than doubles the usefulness of the institution. The authority and prestige enjoyed in their respective cities by the Academy of Medicine in New York, and the College of Physicians in Philadelphia, have no analogue in Boston. I remember being greatly impressed with this lack of an authoritative body of medical men in our midst when I was reading many years ago of the spread of a yellow-fever epidemic. The question of a quarantine against it was under discussion in Philadelphia by the State and city authorities, who referred the whole subject to the College of Physicians, which appointed from its numbers a committee of experts whose report was accepted by the government as final and its recommendations carried out. I could not help thinking at the time that had our State and City Boards of Health, in which we take justifiable pride, needed guidance, or even the support of popular opinion, in such an emergency, they would not have known to what body of medical men they could appeal with the assurance that the public would recognize that body as authoritative. Apart from this important rôle, which we have a chance to fill, our new building will enable us to develop the social side of the physician's life. We may become to a fuller extent than heretofore the centre of all activity among the medical men of the State.

But this subject requires more study and deeper consideration than it can receive on such an occasion as this, and it needs moreover the enthusiasm of youth to bring it to a happy issue. It is time that we, men of '75, stepped down from our official positions and laid upon more stalwart shoulders the burden of accomplishing the latter part of our dream.

"And ye who fill the places we once filled,
And follow in the furrows we once tilled,
Young men whose generous hearts are beating high,
We who are old and are about to die,
Salute you; hail you; take your hands in ours,
And crown you with our welcome as with flowers!

"How beautiful is youth! how bright it gleams
With illusions, aspirations, dreams!
Book of Beginnings, story without end,
Each maid a heroine, and each man a friend!
Aladdin's Lamp and Fortunatus' Purse,
That holds the treasures of the Universe!
All possibilities are in its hands,
No danger daunts it, and no foe withstands;
In its sublime audacity of faith,
'Be thou removed!' it to the mountain saith,
And with audacious feet, secure and proud,
Ascends the ladder leaning on the cloud!"

PRESIDENT CHEEVER: We hope to make this building the permanent home of the Massachusetts Medical Society. The cohesive and conservative force of our parent organization is well represented in its president — the medico-legal pathologist, may I not say, of New England.

REMARKS

BY

F. W. DRAPER, M.D.,
President of the Massachusetts Medical Society.

IT is a congenial official duty, Mr. President, and an enviable personal honor, to respond to your call,

and, in the name of the Massachusetts Medical Society, to swell the chorus of congratulations which this occasion inspires. To one who has watched the evolution of this Medical Library from its beginning to its present moment, this jubilee is as appropriate as it is spontaneous. I recall the modest but hopeful way in which the library began its housekeeping in Hamilton Place. I remember in what an incredibly short time it burst its bounds, becoming so megalocheirous that all books in sight were gathered in; the result of this benevolent assimilation, this rapid expansion, was its removal to other and larger premises. How it has grown and prospered there, how it has faithfully fulfilled its mission, under somewhat trying conditions, while in that diverticulum of hidden dangers, that Bohemian midway pleasance, Boylston Place, you can all remember.

And now, following the westward example of every correct imperial course, it has made its second migration and has come here to what we may believe is its permanent home. And when we contemplate that home, its faultless architecture, its picturesque and dignified environment, its ample appointments, it is easy to join in expressions of gratification and to congratulate the library corporation upon this auspicious and most satisfactory achievement. Here the many thousand books which comprise this library have a fitting domicile, and one can almost hear them say, one to another, as they settle themselves contentedly in their permanent and harmonious places on the shelves, "Isn't this restful? Isn't this comfort?" Here the busy man in active practice can quickly find just the help he wants to take him over his clinical difficulties. Here the scholarly lover of good books can browse at his leisure in the well-tilled, overproductive fields of medical literature. Here the diligent seeker for facts finds in the files of current medical journals, gathered in this storehouse from all parts of the world, the latest record of research and observation. Here the ambitious undergraduate student of medicine, eager for knowledge, satisfies his longing.

And, then, there is another way in which this library meets the needs of medical men and appeals to their gratitude. I know of nothing quite so depressing in the experience of a sensitive physician as the absolutely heartless way in which his tried and trusted friends, the books in his medical library, are hustled and forced to the rear by new and strenuous candidates for favor. These older familiar guides and counsellors of his, whom he has loved and in whom he has confided, must be pushed aside to make room for the latest publication; senile obsolescence claims them as its victims while they are yet young. Something of the same sort is seen in the rapidly moving procession of new and revised editions of the standard works. You begin to get accustomed to Dr. Osler's classic volume when his second edition knocks at the door and seeks admission, and this has hardly settled in its place and become acquainted with its neighbors when the third edition is announced. And so it goes with all the writers whom we recognize as the leading authorities. The demand for new editions is good proof of the advance of medicine, but it requires an alert brain and a plethoric purse to do it justice. Thus it happens that most private libraries of medical books, belonging to physicians in middle life, contain many volumes too old to be usefully modern and not old enough to be valuable on that account. And it is here that the Medical Library in this building will help us; because, for the modest annual assessment, every member can have the benefit of the latest thing in medical literature, either in original works or in new editions. And this is a very obvious advantage.

The reasons why the Massachusetts Medical Society should take special interest in the Medical Library are plain. In all its century and more of organized life, our venerable but ever vigorous State medical fellowship has been the consistent patron of sound medical literature, the zealous advocate of the best in medical education, the cordial exponent of medical progress; and in all these relations it is in closest sympathy with the fundamental spirit and purpose of this library. I would remind you, too, that the membership of this institution is largely composed of Fellows of the Massachusetts Medical Society; that its entire administration has been in their hands, and that the successful development and nurture of it have been under their guidance and control. It is not surprising, then, that the Massachusetts Medical Society takes an interest in this consummation of an enterprise which you, sir, and your associates have accomplished. And it is entirely proper that it should add its laurel wreath of special appreciation as a tribute to the man whom Dr. Oliver Wendell Holmes once described as the "untiring, imperturbable, tenacious, irrepressible, all-subduing agitator, who neither rested nor let others rest until the success of the library project was assured." The description fits Dr. Chadwick today as accurately as it did in 1878.

I must not forget to allude to another and very intimate relationship which the library sustains towards the society, the relationship of landlord and tenant, continuing under this roof an association which has been mutually satisfactory for many years; and I am glad to have this opportunity to make public acknowledgment of the liberal and altogether acceptable manner in which the tenant's needs have been met. As time goes by, these large and attractive halls will be the scene of meetings and of conferences representing the best thought of the medical men of this community. More than that — here will be found the very centre and focus of our highest medical interests, the home of our medical sodality, where the rust of exclusiveness and reserve will be rubbed away by social contact with our fellows, and where we may cultivate mutual respect and courtesy, taking counsel together and standing together for the highest good of our profession.

These are some of the considerations, Mr. President, which not only inspire gratitude and congratulation, but awaken the most cordial hope that the library will have increasing prosperity through all its future; that it will be an important factor in promoting the progress of medicine in this city, there is not a shadow of doubt.

President Cheever: The professor of medicine of Johns Hopkins University is himself one of the best examples of the scientific progress of our profession. As a clear and forceful writer, as a sound, and not too progressive, practitioner, as a lucid expounder in the clinic, he is well recognized in our United States. He

has honored us by his presence and has promised to address us.

REMARKS[2]

BY

WILLIAM OSLER, M.D., LL.D, F.R.S.,
Professor of Medicine in the Johns Hopkins University.

THOSE of us from other cities who bring congratulations this evening can hardly escape the tinglings of envy when we see this noble treasure house; but in my own case the bitter waters of jealousy which rise in my soul are at once diverted by two strong sensations. In the first place I have a feeling of lively gratitude towards this library. In 1876 as a youngster interested in certain clinical subjects to which I could find no reference in our library at McGill, I came to Boston, and I here found what I wanted, and I found moreover a cordial welcome and many friends. It was a small matter I was seeking, but I wished to make it as complete as possible, and I have always felt that this library helped me to a good start. It has always been such a pleasure in recurring visits to the library to find Dr. Brigham in charge, with the same kindly interest in visitors that he showed a quarter of a century ago. But the feeling which absorbs all others is one of deep satisfaction that our friend, Dr. Chadwick, has at last seen fulfilled the desire of his eyes. To few is given the tenacity of will which enables a man to pursue a cherished purpose through a quarter of a century — "*Ohne Hast, aber ohne Rast*" ('tis his favorite quotation); to fewer still is the fruition granted. Too often the reaper is not the sower. Too often the fate of those who labor at some object for the public good is to see their work pass into other hands, and to have others get the credit for enterprises which they have initiated and made possible. It has not been so with our friend, and it intensifies a thousandfold the pleasure of this occasion to feel the fitness, in every way, of the felicitations which have been offered to him.

It is hard for me to speak of the value of libraries in terms which would not seem exaggerated. Books have been my delight these thirty years, and from them I have received incalculable benefits. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. Only a maker of books can appreciate the labors of others at their true value. Those of us who have brought forth fat volumes should offer hecatombs at these shrines of Minerva Medica. What exsuccous, attenuated offspring they would have been but for the pabulum furnished through the placental circulation of a library. How often can it be said of us with truth, "*Das beste was er ist verdankt er Andern!*"

For the teacher and the worker a great library such as this is indispensable. They must know the world's best work and know it at once. They mint and make current coin the ore so widely scattered in journals, transactions and monographs. The splendid collections which now exist in five or six of our cities, and the unique opportunities of the Surgeon-General's Library have done much to give to American medicine its thoroughly eclectic character.

But when one considers the unending making of books, who does not sigh for the happy days of that thrice happy Sir William Browne whose pocket library sufficed for his life's needs; drawing from a Greek testament his divinity, from the aphorisms of Hippocrates his medicine and from an Elzevir Horace his good sense and vivacity. There should be in connection with every library a corps of instructors in the art of reading, who would, as a labor of love, teach the young idea how to read. An old writer says that there are four sorts of readers: "Sponges which attract all without distinguishing; Howre-glasses which receive and powre out as fast; Bagges which only retain the dregges of the spices and let the wine escape, and Sives which retaine the best onely." A man wastes a great many years before he reaches the 'sive' stage.

For the general practitioner a well-used library is one of the few correctives of the premature senility which is so apt to overtake him. Self-centred, self-taught, he leads a solitary life, and unless his everyday experience is controlled by careful reading or by the attrition of a medical society it soon ceases to be of the slightest value and becomes a mere accretion of isolated facts, without correlation. It is astonishing with how little reading a doctor can practise medicine, but it is not astonishing how badly he may do it. Not three months ago a physician living within an hour's ride of the Surgeon-General's Library brought his little girl, aged twelve, to me. The diagnosis of infantile myxedema required only half a glance. In placid contentment he had been practising twenty years in "Sleepy Hollow" and not even when his own flesh and blood was touched did he rouse from an apathy deep as Rip Van Winkle's sleep. In reply to questions: No, he had never seen anything in the journals about the thyroid gland; he had seen no pictures of cretinism or myxedema; in fact his mind was a blank on the whole subject. He had not been a reader, he said, but he was a practical man with very little time. I could not help thinking of John Bunyan's remarks on the elements of success in the practice of medicine. "Physicians," he says, "get neither name nor fame by the pricking of wheals or the picking out thistles, or by laying of plaisters to the scratch of a pin; every old woman can do this. But if they would have a name and a fame, if they will have it quickly, they must do some great and desperate cures. Let them fetch one to life that was dead, let them recover one to his wits that was mad, let them make one that was born blind to see, or let them give ripe wits to a fool — these are notable cures, and he that can do thus, if he doth thus first, he shall have the name and fame he deserves; he may lie abed till noon." Had my doctor friend been a reader he might have done a great and notable cure and even have given ripe wits to a fool! It is in utilizing the fresh knowledge of the journals that the young physician may attain quickly to the name and fame he desires.

There is a third class of men in the profession to whom books are dearer than to teachers or practitioners — a small, a silent band, but in reality the leaven of the whole lump. The profane call them bibliomaniacs, and in truth they are at times irresponsible and do not always know the difference between *meum* and *tuum*. In the presence of Dr. Billings or of Dr. Chadwick I dare not further characterize them. Loving books partly for their contents, partly for the sake of the authors, they not alone keep alive the sentiment of historical continuity in the profession, but they are the men who make possible such gatherings as the one

[2] Books and Men.

we are enjoying this evening. We need more men of their class, particularly in this country, where every one carries in his pocket the tape-measure of utility. Along two lines their work is valuable. By the historical method alone can many problems in medicine be approached profitably. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but he has a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life. The past is a good nurse, as Lowell remarks, particularly for the weanlings of the fold.

> "'Tis man's worst deed
> To let the things that have been run to waste
> And in the unmeaning Present sink the Past."

But in a more excellent way these *laudatores temporis acti* render a royal service. For each one of us today, as in Plato's time, there is a higher as well as a lower education. The very marrow and fatness of books may not suffice to save a man from becoming a poor, mean-spirited devil, without a spark of fine professional feeling, and without a thought above the sordid issues of the day. The men I speak of keep alive in us an interest in the great men of the past and not alone in their works, which they cherish, but in their lives, which they emulate. They would remind us continually that in the records of no other profession is there to be found so large a number of men who have combined intellectual pre-eminence with nobility of character. This higher education so much needed today is not given in the schools, is not to be bought in the market place, but it has to be wrought out in each one of us for himself; it is the silent influence of character on character and in no way more potently than in the contemplation of the lives of the great and good of the past, in no way more than in "the touch divine of noble natures gone."

I should like to see in each library a select company of the Immortals set apart for special adoration. Each country might have its representatives in a sort of alcove of Fame, in which the great medical classics were gathered. Not necessarily books, more often the epoch-making contributions to be found in ephemeral journals. It is too early, perhaps, to make a selection of American medical classics, but it might be worth while to gather suffrages on the contributions which should go upon the Roll of Honor. I did a few years ago make out a list of those I thought the most worthy to 1850, and it has a certain interest for us this evening. The native modesty of the Boston physician is well known, but in certain circles there has always been associated with it a curious psychical phenomenon, a conviction of the utter worthlessness of the *status præsens* in New England, as compared with conditions existing elsewhere. There is a variety today of the Back Bay Brahmin who delights in cherishing the belief that medically things are everywhere better than in Boston, and who is always ready to predict "an Asiatic removal of candlesticks," to borrow a phrase from Cotton Mather. Strange indeed would it have been had not such a plastic profession as ours felt the influences which moulded New England into the intellectual centre of the New World. In reality, nowhere in the country has the profession been adorned more plentifully with men of culture and of character and, nappily, not voluminous writers or exploiters of the products of other men's brains — they would manage to get a full share on the Roll of Fame which I have suggested. To 1850, I have counted some twenty contributions of the first rank, contributions which for one reason or another deserve to be called American medical classics. New England takes ten. But in medicine the men she has given to the other parts of the country have been better than books. Men like Nathan R. Smith, Austin Flint, Willard Parker, Alonzo Clark, Elisha Bartlett, John C Dalton and others carried away from their New England homes a love of truth, a love of learning and above all a proper estimate of the personal character of the physician.

Dr. Johnson shrewdly remarked that ambition was usually proportionate to capacity, which is as true of a profession as it is of a man. What we have seen tonight reflects credit not less on your ambition than on your capacity. A library after all is a great catalyser, accelerating the nutrition and rate of progress in a profession, and I am sure you will find yourselves the better for the sacrifice you have made in securing this home for your books, this workshop for your members.

President Cheever: The librarian of the New York Public Library represents the largest collections of our land next to the Congressional Library. Fortunate for us and for medicine that he has given some of the best years of his life to our interests, and that in the Surgeon-General's Office and in the Army Museum and Library he has indexed the medical universe.

REMARKS

BY

J. S. BILLINGS, M.D., LL.D., D.C.L.,

Librarian of the New York Public Library.

No doubt we have all heard "platform figureheads" — of advanced years and much experience — commence their remarks on occasions like this by saying that one of the privileges of old age is the perspective, restrospective view which it gives of institutions, society and the world in general. I used to suppose that this was an excuse for, and explanation of, the attitude of sage and prophet assumed by the speaker, and that he enjoyed solid comfort in giving advice; but I am now beginning to appreciate how those old gentlemen really felt when they announced this important discovery. Most of them, I think, did not feel as wise as they looked, nor as certain and free from doubt as they did in their youth, but circumstance compelled them to speak, and this was a way to begin.

As I look back to the ceremonies of opening the then new building for this library in Boylston Place in 1878, I find that of the speakers on that occasion, I am the only one now present. President Eliot is still very much alive, although not here tonight; but Holmes, Ellis, Lyman, Smith, Henry I. Bowditch and Justin Winsor have passed away, and their biographies have been written. Fortunately, the results of their work remain and are enlarging, and one of these results we have before us tonight.

The medical prospect has changed somewhat within the last twenty-two years; there is a new literature, a new pathology, a new surgery, and new names for

some very old things, — Christian Science, for example, — but the old records have not lost all interest, and the special value of the library is that it contains both the old and the new. In his memorable address twenty-two years ago, Dr. Holmes rightly insisted that a library like this must exercise the largest hospitality, but this applies to gifts rather than to purchases. The funds for conducting a library, medical or other, are always insufficient, and the librarian, or library committee, must therefore exclude from the purchase lists many works which might be welcome additions if obtainable from other sources. The selection is sometimes difficult, and in making it, the work of other reference libraries in the vicinity, such as the public library, the university library, and some special libraries, must be considered. Even gifts must be scrutinized with reference to available space, and to their relative utility in other neighboring institutions. This library does not want a set of United States public documents, or of Massachusetts documents, although in each of these series there are a few things which it should secure. Curious things may be found in public documents. How many of you, I wonder, have ever heard of Herkimer Sternberg, and his great medical discovery, which is vaguely indicated in the following extract from Document No. 15 of the Assembly of the State of New York, dated January 15, 1859, being a report of the Committee on Medical Societies and Colleges, relative to the petition of Herkimer Sternberg for aid in publishing his manuscript of a proposed work. The committee reports "that they have had under their serious consideration the subject referred to them and have become satisfied if the prayer of the petitioner be granted, that the result of the scheme proposed by this Herkimer Sternberg, if successful, will be the annihilation of the medical profession, and thus the five or six thousand doctors of our State will be turned out upon the cold charities of an unfeeling world; that it will introduce the millenium several years before its proper advent in the regular order of business; that it will dislocate every joint in the system of the moral universe . . . and, therefore, the committee ask to be discharged from its further consideration."

In cities where there is no medical library, it is clearly the duty of the public library to provide some of the best medical books and periodicals for the use of the physicians of the city, as well as for the direct benefit of the public. It, is however, a matter of common experience that some lay readers are rather injured than benefited by reading medicine, and that it is best to restrict the use of certain classes of medical books. It simplifies the problems of the librarian of the public library when he knows that there is in the city a special medical library available for the use of physicians, and that he need only obtain those books which, if not exactly suitable for public use, are not calculated to do much harm. He will usually be glad to send to such a medical library the medical books of the eighteenth and most of the nineteenth century, old medical journals, miscellaneous medical pamphlets, theses, reports, etc., and to retain in the public library only those which have some interest in local history, or in other subjects besides medicine.

There are certain duties and responsibilities which rest upon a few large reference libraries which do not pertain to the great majority of city public libraries. For example, the average city library should collect and preserve all the reports of hospitals in its own city as a matter of local history, but it should not waste time or energy over the reports of hospitals in other cities, but should send those that come in either to a medical library or to one of the great reference libraries of the country like the Boston Public, the New York Public, or the Congressional Library. These great libraries must collect and preserve such reports as a part of their collections relating to charities — private and public — an important branch of sociology, but they are only useful in this way when the collections are very large and permit of comparisons of methods and results from a wide area and for considerable periods of time.

The field of medicine is very broad, and the special medical library might properly include not only general biology with its general subdivisions of morphology, physiology, psychology and anthropology, but also much of the literature of botany, zoölogy, chemistry, physics, municipal engineering, building and other applied sciences — and in fact the great medical libraries of London, Paris, Berlin, St. Petersburg and Washington do include many of these subjects. But this requires more space and money than most medical libraries can afford to give, and hence it is usually best to leave most of these subjects to other special libraries.

The department of first importance in a library like this is that which contains its files of periodicals, not only because they contain the original records from which textbooks and monographs are made up, but they represent the feelings, views and wants of the great mass of the profession, and are the great sources for the medical history of the nineteenth century. Medicine is now the most cosmopolitan and international of all the arts and professions, and this is largely due to its periodicals. Moreover, its periodical literature is now more accessible than that of any other profession because of the indexes upon which Dr. Holmes so much insisted. All this has been fully recognized by your librarian, and you are very rich in this class of literature. Thanks to the efforts of the medical profession of Boston (aided by those of some other parts of the country), Congress was induced to order the printing of the Index Catalogue of the Washington Collection which was under consideration twenty-two years ago, and which I then thought might make six volumes. This Index Catalogue is not yet finished, only twenty volumes having been published; but it can give considerable employment to the bibliographical student even now, and has probably added to the practical utility of this library, but perhaps not always to the perfect joy and content of its readers.

The fact that the physicians of Boston have another library besides this one to care for, as shown by their action with regard to the Index Catalogue, is one that I venture to remind you of because the needs of your National Medical Library are liable to be overlooked. Just now it is in urgent need of shelving for its additions, some of which are being stored in window sills or on the floor, which is bad for the books and for the readers.

Requests for funds to provide this shelving have been presented at the last two sessions of Congress, but received no attention. An estimate is before the present Congress for $9,000 to supply this shelving, and if the Massachusetts representatives and senators

hear from their medical constituents that this is a matter in which they are interested, there is no doubt that it will be done.

Your Washington Medical Library now contains 136,000 volumes and 230,000 pamphlets — decidedly the largest and best library of its kind in the world — and ought to be kept up to date in good shape.

When I tried to say something on the occasion of the opening of this library in the Boylston Place Building, I well remember that I was very much embarrassed and not a little afraid, and would have been very glad to have been merely a listener.

On the present occasion, while I am in trouble to find the right words in which to express my thoughts and feelings, I am very glad indeed to have the opportunity to congratulate you upon the result of the work of the Boston Medical Library Association during the last twenty-five years, and I do congratulate you most heartily and sincerely. The collection of books, of portraits, of medals, the building in its plan, structure and furnishings, are all things of which you have good right to be proud, and with which you may rest satisfied for several weeks to come.

As you all know, these results are largely due to the fact that one man having abundance of energy and public spirit, with much knowledge and an insatiable thirst for more, and with a fairly definite idea of what he wanted, has been working incessantly for the last quarter of a century towards this end. I congratulate you upon your wisdom in letting him thus work, and in helping him to carry out this plan. His power for good has not been limited to Boston, for by way of recreation he has devoted some of his time to stirring up and stimulating other librarians like myself, when he thought they needed it, or when he had some superfluous energy to dispose of, which was often. In this and other ways, he has given material and valuable assistance to other libraries, more than any of you are aware of, and it is not my personal affection for him, great as that is, but a sense of what is just and right, which leads me to say to you that, while the Boston Medical Library has been his special pet, for which no trouble was too great to take, and no sacrifice too great to make, all other medical libraries in this country are more or less indebted for their progress and prosperity to your librarian, Dr. James R. Chadwick.

President Cheever: The genial professor of therapeutics from Philadelphia will now address us. He is also a professor of nervous diseases, but he will omit that branch on this occasion. As representing the oldest medical centre in America, and still among the most modern, I take especial pleasure in introducing him to you.

REMARKS

BY

H. C. WOOD, M.D., LL.D.,

College of Physicians of Philadelphia; Professor of Nervous Diseases and Therapeutics, University of Pennsylvania.

Mr. President and Gentlemen who have assisted in the creation of the Boston Medical Library. — It is with a high sense of the honor conferred upon me that I bring greetings and congratulations in this, the opening of the twentieth century, to you, the fruit of whose labors is seen in the substantial edifice and the loaded bookshelves which surround us; greetings and congratulations from the College of Physicians of Philadelphia.

In doing this I desire to express most warmly my appreciation of the great work which has been done largely through the efforts of a few men among you, and in a comparatively brief period. It may well be questioned whether so rapidly a successful effort has been equalled upon the American Continent, and I trust that it will be understood that what I have to say in regard to the institution which I represent is said in no spirit of egotism, but simply as the effort of age, perhaps senile and garrulous, to read lessons to the young through its own experience.

The College of Physicians of Philadelphia was born January 2, 1787, amidst surroundings most primitive, and has grown with the growth of American civilization. That the founders of the college had very clear ideas as to the necessity of a medical library for the increase of medical knowledge, and for the perfection of medical units, is shown by the fact that during the first year of its existence the college discussed the subject, and a few weeks later, namely, on March 3, 1788, by the formal acceptance of the gift from Dr. John Morgan of 24 volumes, by the approval of a regular plan for a library, and by the appropriation of fifty pounds — Colonial — for the purchase of books, laid the foundation of that collection of medical books which is today the most valuable of its kind in the United States, save only the one in Washington belonging to the Federal Government. In the library of the college at Philadelphia there are at present 61,359, or including duplicates, 65,499 volumes, besides unbound pamphlets; there is also an especial fund of $50,000 for the purchase of new books.

It has seemed to me, in thinking over what I know of the profession in Boston, that possibly it might be well for the association of physicians which has been successful in the creation of the library about us to widen the scope of its operations, and thereby do great good and indirectly assist the library itself. So far as can be seen, if the founders of the College of Physicians had made the creation of the library their sole object, the library would have soon perished as one born out of due time. It has been the cohesive influence of aims other than those purely scholastic which has bound together successive generations of medical practitioners in Philadelphia so firmly as to make possible the gathering together of medical books; an object which was perhaps secondary in the minds of the founders, and besides which in their acts is clearly foreshadowed a threefold intent.

Plainly first among the results which it was hoped to attain was by fostering intercourse amongst fellows of the college to increase that personal friendship and amity which restrains far more powerfully tendencies to professional jealousy and undue rivalry than can any written law of ethics or any inculcation of precepts of professional conduct even during the educational period of life; the result has been that there are few members of the college who do not value the friendship and esteem of their fellows as their choicest possessions, and that the relations between members of the profession in Philadelphia are among the most perfect in the world.

The second object, for the attainment of which the

college was seemingly organized, was for the stimulation in its members of professional zeal in study and in doing what they could for the enlargement of the boundaries of medical knowledge. Even if time allowed, it would be scarcely becoming in me to show how successful the years have been in this respect, nor yet is it needful: the history of medicine in Philadelphia must be sufficiently known to you to recognize that in no other centre in the United States have there been more men of national or international fame, or more success either in actually increasing knowledge or in preparing it as brain food for the rank and file of the profession.

The third intent, which was early manifested in the acts of the college, was to afford a body of physicians, the conjoint local reputation of whose members would be sufficient to give overwhelming weight to any deliberate expression of opinion made by the assembly upon matters medical in which the general public was concerned.

A few months after the foundation of the library, namely, in April, 1789, the influence of the college was first brought to bear upon the public authorities. The old records show that at the time there was a widespread epidemic of influenza in Philadelphia; that the President of the United States was to visit the city on his way from Mt. Vernon to New York, where he was to be inaugurated; and that among other ceremonies a general illumination was proposed; but that on the representation of the college that the late night exposure in the month of April would undoubtedly increase the number of victims of the prevailing disease, the proposed illumination was abandoned. The action of the college and its results may after all have been matters of no great importance, but they were drifting straws, showing the set of the current of public opinion; a current which later in the same year led the Legislature of Pennsylvania to formally apply to the college for assistance in the emendation of the State laws for the prevention of the introduction of infectious diseases.

To make further citations of similar instances of correlation between the College of Physicians and the governmental authorities of the State or of the city would require simply a going over the records of the history of the college, but I have been sternly warned not to overpass ten minutes of time, so I forbear; only calling attention to the fact that the College of Physicians has frequently taken part in governmental procedures, and that the degree of attentiveness of the governmental ear to its voice has usually been a fair measure of the wisdom and the honesty of the governmental brain. As politics in the modern sense of the word has grown among us to be more and more of a special business, so has the governmental ear been dulled; as city or State governments have risen or ebbed in the standard of their purity, so have the admonitions of the college been listened to or neglected; and usually has the community reaped the reward or paid the penalty for such action, since in most cases the decisions of the college have been correct.

Such, gentlemen, is the brief lesson which I would read to you from the long and successful history of the College of Physicians of Philadelphia; led by it I venture to urge that for the continuing success of your library, for the internal benefit of the profession in Boston, for the advancement of medical knowledge within your bounds, for the general good of the community in which you dwell, the association should broaden its scope, so that it should become not simply a library association but a veritable collegium, whose fellows pass through life hand in hand, in all fidelity inciting each other to good works.

May I further add that the history of the Philadelphia College indicates that in such broadening certain matters must be attended to. It seems to be primarily essential that all school fellowships and affiliations be laid aside in the membership. Alumni associations are well, but they have here no place. The graduate of Harvard must for the time being forget his Alma Mater in a wider brotherhood, so that whether a man be a Boston graduate, or come from the far-off University of Tokyo, or from the school of Göttingen, he shall be equally available for membership in the association and for honors in its body politic. On the other hand, almost equally essential is it that no attempt be made to interfere with what may be considered the normal political aggregation of physicians in the United States, namely, the county medical societies, growing upward to the State societies, and then to the general association in the United States. In the county medical societies every legalized physician, who is willing to be honest and upright in his profession, should have the right to take part, but in the proposed organization the standard of membership should be higher; so that membership in the association should be looked upon as an honor, because it stands not only for high professional purity and ethicality, but also for high professional zeal and culture. It is given to but few to be professional leaders, but many can be honest medical gentlemen, highly cultured students, and thoroughly conscientious physicians; of such and of such only should be the membership in the suggested College of Physicians of Boston.

PRESIDENT CHEEVER: It is a good omen for us that a doctor of medicine is even a temporary ruler of Harvard University. Medicine and our Medical Library are well represented in the corporation. But in the acting president we have a conspicuous example of sanitary, professional and executive ability.

REMARKS

BY

HENRY P. WALCOTT, M.D.,

Acting President of Harvard University.

THE opening of a library devoted to the general purposes of literature, history and art would compel the representative of a great teaching body to say something about the appeal which such collections make to the cultivated and intelligent members of the community. We cannot, however, say that this collection of books will ever appeal to us in the higher sense in which the masters of literature have swayed their worlds.

You shall find no author here who has made a figment of his imagination as real as an actual personage of history.

The diseases of the human race, and I may add, too, those of the domesticated animals, have an interest that needs no play of the imagination and not even the graces of style. The description, however, must

have scientific accuracy, and that implies competent authority.

We read in vain the matchless pages of Thucydides to discover the real nature of the plague at Athens; the great historian could not adequately describe a disease which he not only saw, but from

books as have become of historical interest only.

The explanation of this seeming lack of care on the part of the university for her Medical School, in which she takes a just pride, is undoubtedly to be found in the fact that the resources of this library have been most freely given to the teachers and students of the school. The authorities of the university may well consider whether some equitable arrangement may not be possible for giving to the library an equivalent for the valuable and necessary assistance so freely and generously bestowed.

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ways,

Your friend,
S. Weir Mitchell.

A Centenarian. — John B. Laing died in Chicago January 9th, at the reputed age of one hundred years.

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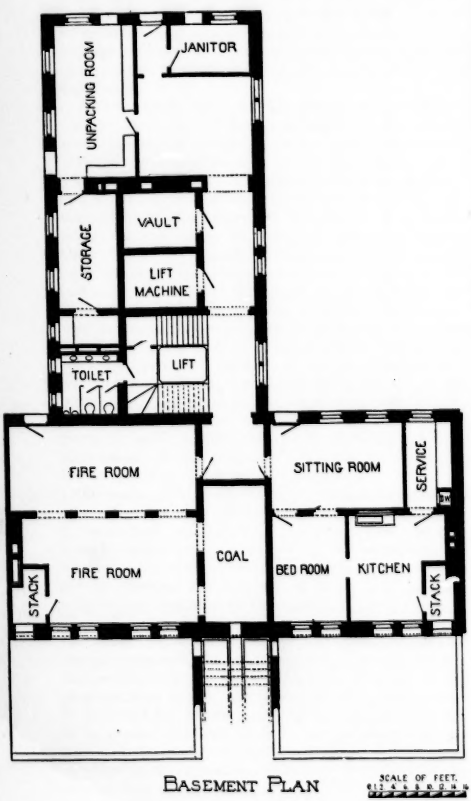

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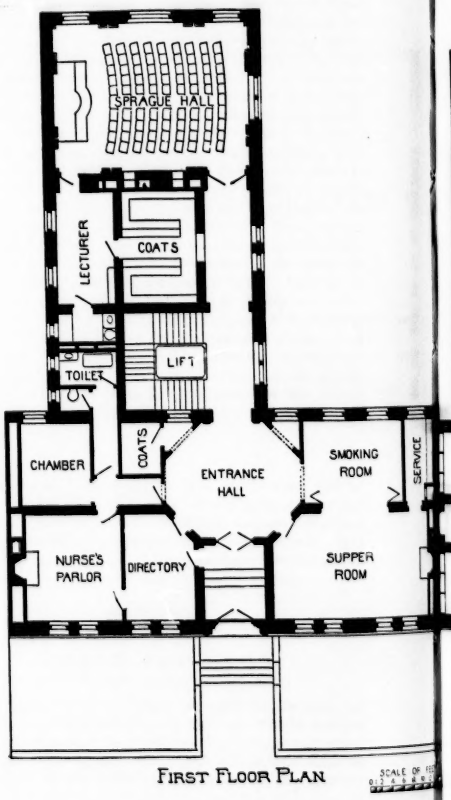

FIRST FLOOR PLAN

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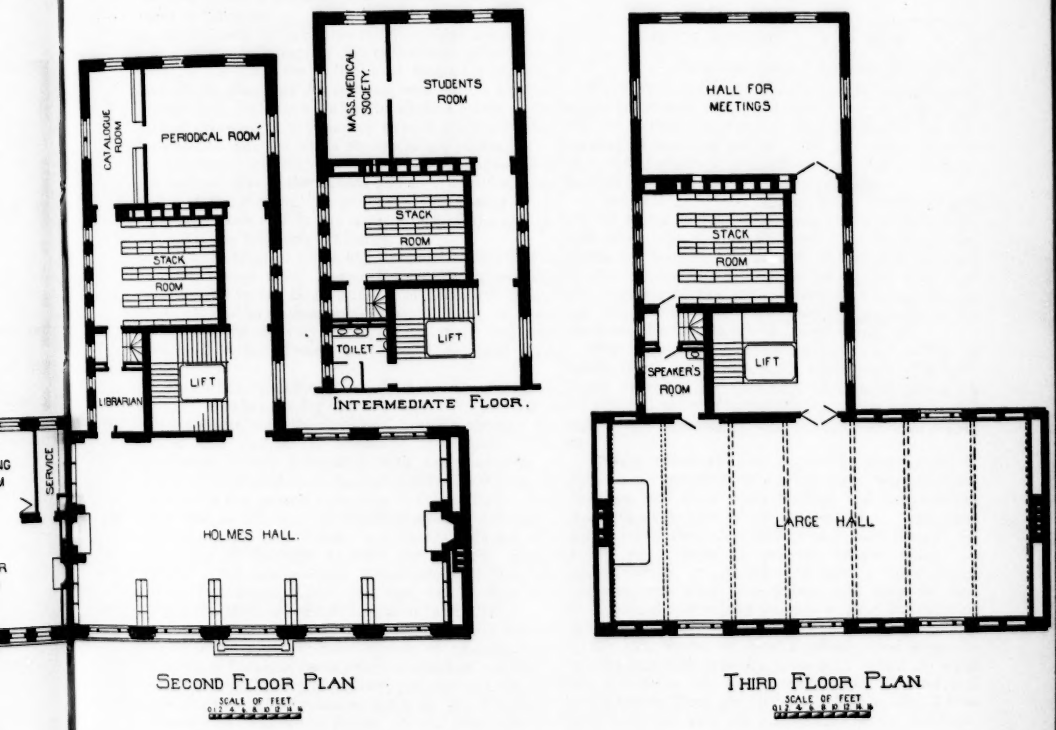
N HE NEW BUILDING



SECOND FLOOR PLAN
SCALE OF FEET

THIRD FLOOR PLAN
SCALE OF FEET

books as have become of historical interest only.

The explanation of this seeming lack of care on the part of the university for her Medical School, in which she takes a just pride, is undoubtedly to be found in the fact that the resources of this library have been most freely given to the teachers and students of the school. The authorities of the uni-

ways,

Your friend,
S. Weir Mitchell.

A Centenarian. — John B. Laing died in Chicago January 9th, at the reputed age of one hundred years.

college was seemingly organized, was for the stimulation in its members of professional zeal in study and in doing what they could for the enlargement of the boundaries of medical knowledge. Even if time allowed, it would be scarcely becoming in me to show how successful the years have been in this respect, nor yet is it needful the history of medicine in Phil-

within your bounds, for the general good of the community in which you dwell, the association should broaden its scope, so that it should become not simply a library association but a veritable collegium, whose fellows pass through life hand in hand, in all fidelity inciting each other to good works.

Such, gentlemen, is the brief lesson which I would read to you from the long and successful history of the College of Physicians of Philadelphia; led by it I venture to urge that for the continuing success of your library, for the internal benefit of the profession in Boston, for the advancement of medical knowledge

ment of his imagination as real as an actual personage of history.

The diseases of the human race, and I may add, too, those of the domesticated animals, have an interest that needs no play of the imagination and not even the graces of style. The description, however, must

have scientific accuracy, and that implies competent authority.

We read in vain the matchless pages of Thucydides to discover the real nature of the plague at Athens; the great historian could not adequately describe a disease which he not only saw, but from which he had himself suffered. Our pious ancestors resolved that "good learning should not perish from among us," and so founded the schools at Cambridge. The first substantial help was given by John Harvard, but little less precious than his bequest in money was the legacy of his books. It is well, then, that we should here cherish books, and it may be interesting to consider for a moment how Harvard College has used its libraries.

In my own college days the librarians were little more than watch dogs of the collections under their charge. Beyond the volumes of Reis's Cyclopædia, the *North American Review* and some of the English quarterlies, students were rarely allowed access to the actual presence of the books; twice a week we were allowed to take out books for use in our rooms.

The result was that the faithful officers turned over to their successors the unused and well preserved contents of the shelves. A generation has passed away, and I can now read in the latest report of the college librarian the following statement:

"The number of books but continues to increase at a fairly steady rate. Borrowing has doubtless been encouraged by the large number of attractive books, both old and new, that are constantly kept on open shelves in the delivery room, where every one who comes into the library is tempted to look them over."

The whole number of students in Cambridge is 3,151; number taking books, 2,488. The collection is open both daytime and evening through the week and also on the afternoon of Sunday. The university library is credited with the possession of 548,000 books; of these, however, only 379,000 are deposited in the general collection in Grove Hall. The rest are in the various departments and laboratory libraries; the Law School has 50,000 volumes; the Museum of Zoölogy, 34,000; the Divinity School, 30,000; the Astronomical Observatory, 9,000; the Gray Herbarium, 7,500, and last, and in this case least, the Medical School, is said to have 2,240.

Beyond this system of department libraries there is another and more extensive system of laboratory and classroom libraries, twenty-four in number, varying in size from the library of history, political economy and sociology of 4,500 volumes, down to the Preachers' Library in Wadsworth House of less than 100 volumes.

In this enumeration, the striking fact is the absolute poverty of the Medical Library as compared with the collection with which a comparison may be justly sought — the zoölogical library built up under the fostering care of its great and generous curator; a working library only, which is annually turning back into the great receptacle in Grove Hall such books as have become of historical interest only.

The explanation of this seeming lack of care on the part of the university for her Medical School, in which she takes a just pride, is undoubtedly to be found in the fact that the resources of this library have been most freely given to the teachers and students of the school. The authorities of the university may well consider whether some equitable arrangement may not be possible for giving to the library an equivalent for the valuable and necessary assistance so freely and generously bestowed.

President Cheever: We had hoped to have with us tonight the Holmes of Philadelphia, himself both a lover and an author of books, a valued contributor to medical and to general literature, a master of style in prose and in verse. I ask Dr. Chadwick to read a letter from Dr. S. Weir Mitchell.

LETTER

FROM

S. WEIR MITCHELL, M.D., LL.D.

Philadelphia, December 29, 1900.

Nothing, my dear Chadwick, except engagements, not to be broken, keeps me from being among those who in person congratulate the profession on the opening of your new library. To you more than to any other I send my gratulations, for to this end you have given costly days out of a busy life.

I see as I grow old, or may I say older, how few are the young medical men whose tastes are scholarly, and who, like Holmes and our own lamented Da Costa, are familiar with the fathers and find pleasure in the old books — the quaint books, the sense and the vagaries of the past. Without a great library few can afford these intellectual playgrounds, or, indeed, acquire the material for such indulgence.

May your new building and growing wealth of books tempt many into paths where some of us have found unlooked for treasuries of interest and even of practical value; for indeed the dying century did not invent common sense, and genius is of every age.

I often remember with regret the great waste of time in my younger days when there were no great libraries, and when John Billings had not indexed the medical thought of all the centuries. The enormous labor then involved in any mere literary research as to facts no one can imagine today. A great library of medicine is truly a labor-saving machine, and over your library and over its new home you should rejoice because a great library, well managed, practically lengthens life by saving time.

My thin thread of New England blood seems to be tingling with friendly pride as I reflect on what the profession has here accomplished. I send you my greeting from the city I love best to that I love next best, and wish you all, and the newly instituted library, long, useful and honored days.

As I pause to assure you how truly I am yours I am conscious that I really have more and better things to say; but as like as not others will have said them, and I leave therefore to the eloquence of suggestive imagination all the fine things which I am tempted to say and will not.

Believe me, my dear Chadwick, always and in all ways,

Your friend,

S. Weir Mitchell.

A Centenarian. — John B. Laing died in Chicago January 9th, at the reputed age of one hundred years.

Clinical Department.

NOTE ON THE TREATMENT OF EPIDERMOID CANCER BY THE RÖNTGEN RAYS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

RECENTLY I have had the opportunity in this JOURNAL of directing attention to the value of the x-rays in the treatment of ous and since that time further experience has confirmed my belief in it as a therapeutic agent in lupus vulgaris.

I desire now to state my conviction that the x-rays are of value in the treatment of certain forms of cancer. Their usefulness in relieving pain in cancerous growths was demonstrated in Germany some time since, and in the *Philadelphia Medical Journal* of December 8 and 15, 1900, Drs. Wallace Johnson and Walter H. Merrill have presented an excellent article on the x-rays in the treatment of cancer. My experience differs from theirs in some respect , but before referring to it I will consider one or two points relating to face cancer. It is well known that this form of cancer may yield to treatment with caustics and as they insist on the importance of causing a burn, it would seem quite possible that the good results they have obtained might have been due to the caustic action which they state it is essential to excite. They produce a mild inflammation, gradually increasing its severity till there is a burn of such depth that it would require six weeks to heal on a healthy skin.

My experience at the Boston City Hospital indicates that we have either in the x-rays themselves or in some other form of radiation from an excited Crookes' tube a valuable therapeutic agent in epithelioma and that the beneficent action of the x-rays can be brought about without causing a burn. The patients to which I chiefly refer entered the Boston City Hospital in the service of Dr. H. L. Burrell, who at my suggestion had a small piece of the growth taken out and submitted to Dr. Mallory; the latter reported that the growths were epidermoid carcinoma. Then Dr. Burrell most kindly had the patients transferred to my care. I have convinced myself that without causing any pain and without the delay or inconvenience to the patient of an x-ray burn we can accomplish excellent results with this new method of treatment. Foul and nearly unbearable odors cease, the discharge becomes less and the growth steadily diminishes in size.

The earlier this treatment is undertaken the better. It is not improbable that we shall find its curative action limited to superficial growths, though as a means of relieving the painful features of the disease in other forms it may be of some use.

The delay in seeking medical advice for the treatment of a new growth in its earliest stages has been caused in many cases by the dread of the knife, but there is nothing to be feared in the use of the x-rays if they are properly applied; that is to say if the apparatus, especially the Crookes' tube, is suitable, the distance of the patient and the duration of the exposure are properly chosen and other necessary precautions are taken.

Later on I shall present in more detail the results of the use of the x-rays in the treatment of cancer.

Medical Progress.

REPORT ON THE DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D., BOSTON.

KOPLIK'S SIGN IN MEASLES.

WIDOWITCH [1] has studied the diagnostic value of Koplik's spots in a recent epidemic of measles at Gratz. He examined 158 cases. The spots were found in 140 of the cases, 88.6%, and were absent in 18, 11.4%. Other prodromal symptoms which confirm the diagnosis were found in 115 of the cases in which the spots were present. In the other 25 cases it was the only prodromal symptom present.

He concludes, therefore, that Koplik's sign is not pathognomonic since it was wanting in one-tenth of the cases, and most often was associated with other prodromal symptoms. He also found it 10 times in 135 cases of rubella, in 1 case of follicular angina, and in another of stridulous laryngitis. He thinks this occurrence in other diseases diminishes its value. [Even if not pathognomonic, a sign which is found in nearly 90% of the cases of measles, not infrequently without the presence of other prodromal symptoms, is certainly of the greatest diagnostic value. Too much reliance, moreover, cannot be placed on the observation of the spots in 10 cases of rubella, for the diagnosis between measles and rubella is notoriously difficult.]

Rolly [2] found the sign from four days to six hours before the eruption in 24 of 78 cases of measles. In 11 cases in which it was not observed the examination was not made until from twenty-four hours before the eruption to four days after, too late a period from which to form definite conclusions as to the presence or absence of the sign at an earlier stage of the disease. He never found the spots in scarlatina, bronchitis, diphtheria, aphthous stomatitis, or numerous other diseases.

Hirsh [3] concludes that Koplik's sign is always present in the beginning of measles. The spots are present from twelve hours to five days before the cutaneous outbreak. The number of these spots bears no relation to the severity of the attack. They are found in no other condition of health or disease.

Maroney [4] studied 140 cases of measles, and concludes that Koplik's spots are an absolutely pathognomonic sign of measles from which a positive diagnosis can be made at an early stage of the disease. In the great majority of cases they appear before the skin eruption, and in almost one-half the cases before coryza or conjunctivitis. Their recognition allows early isolation, and provides a means of limiting epidemics in hospitals and institutions.

Ross [5] concludes from the study of 15 cases that Koplik's sign is most valuable, rendering an early diagnosis possible before the appearance of the exanthem. It is of assistance in differentiating true measles from rötheln, erythema and scarlet fever, and also from diseases which simulate measles in their early stages, such as influenza and simple colds.

[1] Wien. klin. Woch., 1899, No. 37.
[2] Münch. med. Woch., 1899, No. 38.
[3] Philadelphia Medical Journal, August 25, 1900.
[4] Yale Medical Journal, October, 1900.
[5] Columbus Medical Journal, vol. xxiv, No. 2.

THE PRESENCE OF DIPHTHERIA BACILLI IN THE MOUTHS OF HEALTHY INDIVIDUALS.

Kober[6] has made an extended study in Flügge's laboratory regarding the frequency with which diphtheria bacilli are observed in healthy throats. He examined 128 persons who had been exposed to diphtheria and 600 who had not knowingly been exposed. The diagnosis of the presence of Klebs-Löffler bacilli was made by cultures upon serum and microscopical examination after six hours, by Neisser's double stain with cultures from nine to eighteen hours old, by the acidity test and by inoculation of guinea pigs. He found diphtheria bacilli in healthy throats much less often than had previous observers. In his series they were found in only 8% of the persons exposed to diphtheria, and in only 2½% of those not exposed to diphtheria. It was found on further inquiry that two-thirds of those who were thought not to have been exposed had really been exposed directly or indirectly to the focus of the disease. Excluding these, the proportion of unexposed individuals having the bacilli in their throats is reduced to .83 of 1%. The organisms found in the throats of those known to have been exposed were all virulent; two-thirds of those found in the non-exposed were non-virulent.

THYMUS DULNESS.

Blumen Reich[7] studied the thymus dulness on more than 100 children, some ante mortem and some post mortem. He found that post-mortem examinations were as satisfactory as ante-mortem. He used light percussion and percussed for the absolute, and not the relative dulness. According to him the thymus gives rise to an area of dulness which is irregularly triangular in outline, the base being made by the line connecting the two sternoclavicular articulations, the blunt apex situated at the level of the second rib or slightly below it, and the sides a little beyond the edges of the sternum. The larger half of the triangle of dulness usually falls to the left side. When the limit of dulness given above varies by one or more centimetres or obscures the pulmonary resonance between the upper line of cardiac dulness and the lower lateral limit of thymus dulness, an enlargement of the thymus gland is indicated. The thymus dulness is present until the end of the fifth year, after which it is inconstant. He found that swollen lymph nodes in the anterior mediastinum do not cause dulness, but that cheesy lymph nodes do.

PRIMARY SPLENOMEGALY.

Boviard[8] under this title, or endothelial hyperplasia of the spleen, describes 2 cases of his own in children, and 4 others collected from literature. His 2 cases were sisters. In one the disease began at three years, and death occurred at sixteen years after splenectomy; in the other it began at two years, and the child was alive four years later. He gives the symptomatology, based on the observation of his own and of the other cases, as follows: Slow progressive enlargement of the spleen beginning in childhood; enlargement of the liver secondary to that of the spleen, which may be considerable but not reaching the extent of the splenic affection; simple anemia, the only changes observed in the blood being those associated with any chronic enlargement of the spleen; softening of the gums with oozing of blood and repeated epistaxis; in some cases cutaneous hemorrhage and icterus; finally symptoms referable to the mechanical effect of the splenic enlargement — pain in the abdomen, disturbance of the functions of the stomach and bowels, dyspnea, dysuria, and cramps in the legs. The disease is not fatal *per se*. From the history of the patients and collected observations he concludes that the enlargement of the liver is secondary to that of the spleen.

The autopsy of his fatal case showed that the organs were essentially normal except the spleen, liver and abdominal lymph nodes. The characteristic feature of the pathological process in the spleen, liver and lymph nodes was the multiplication of endothelial cells associated in the cases of both spleen and liver with a great increase in the connective tissue of the organ. He concludes that the process is not a new growth, but an endothelial hyperplasia of the spleen, and that it may be associated with like changes in the retroperitoneal and mesenteric lymph nodes and in the connective tissue of the liver. He thinks that it is a definite, distinct disease and can be differentiated from any previously described, including splenic anemia. At present, however, the only sufficient distinction of the type of the disease is the pathology. That is altogether different from anything else to be found in medical literature.

SCLEROSIS OF THE PANCREAS FOLLOWING CHRONIC GASTRO-ENTERITIS.

Arraga and Vinas[9] having noticed the frequency of changes in the pancreas in children dying of chronic gastro-enteritis, they studied the pancreas carefully in 10 cases from two to eight years old. They found it to be hard, more or less diminished in volume, and the seat of a chronic angiopancreatitis, as demonstrated by microscopic examination. The inflammatory process apparently spread from the intestine through Wirsung's duct to the pancreas. The acini suffered less than the ducts. They maintain that the pancreatic lesion is of the first importance in the symptomatology, prognosis and treatment of gastro-enteritis.

EXTRACT OF THE SUPRARENAL CAPSULES IN THE TREATMENT OF RHACHITIS.

Stoeltzner[10] studied the action of suprarenal extract in the treatment of rhachitis in Heubner's clinic. He arrived at the following conclusions:

(1) Suprarenal extract influences very favorably the general condition, the vasomotor excitability, and the craniotabes. All these symptoms are often considerably relieved in one or two weeks.

(2) Children soon begin to sit up, to walk and to run. The softness of the thoracic bones disappears very rapidly, and the delayed teeth appear.

(3) The epiphyseal enlargements and the deformities of the head, thorax and extremities are but little influenced.

(4) Spasm of the glottis is seldom much helped.

(5) The amelioration of the symptoms is most marked during the first week of treatment; later, it is less rapid.

[6] Zeitschr. f. Hyg., Bd. xxxi, S. 433.
[7] Virchow's Archiv, Bd. cxl, S. 25.
[8] American Journal of the Medical Sciences, vol. cxx, p. 377.
[9] Arch. de méd. des enfants, vol. iii, No. 7.
[10] Jahrb. f. Kinderheilk., 1900, Bd. i, S. 73, 199.

(6) Improvement ceases or there is a return of the symptoms if treatment is interrupted. Improvement begins again with the renewal of treatment.

(7) Even in cases complicated by syphilis, enteritis or bronchitis, this treatment helps the rhachitis considerably.

THE ELIMINATION IN INFANTS IN THE URINE OF SUGARS INTRODUCED SUBCUTANEOUSLY OR BY THE DIGESTIVE TRACT.

Nobécourt[11] calls attention to the fact that while the conditions which regulate absorption, assimilation and elimination of various forms of sugar have been thoroughly studied in the adult, very little work of the kind has been done in infants. He has therefore undertaken an investigation of the subject with reference to the first three years of life. He arrives at the following conclusions:

(1) The intestinal mucous membrane of the infant has a powerful converting power as regards lactose. It transforms considerable quantities of lactose introduced into the intestines with the milk, and is capable of transforming single doses much larger than are ever contained in an ordinary breast feeding. In general this power is more marked in the young infant than in the adult, but there are numerous exceptions.

(2) The intestinal mucosa of the infant possesses also the power of inverting saccharose. It seems as active in one case as in the other, if the dilution is the same. Glycosuria was never observed in the normal infant with lactose or saccharose. In some rhachitics alimentary glycosuria was produced with glucose. At this age the organism has a more marked action upon glucose than in adult life. This action does not seem to be limited to the liver but extends to all the tissues.

CONTRIBUTIONS TO THE STUDY OF THE TOXIC ACTION OF MILK OF TUBERCULAR ANIMALS.

Jemma[12] presented a preliminary report of some experiments he had performed upon rabbits to determine what action a tubercular milk sterilized at 100° C. would have when administered daily as a food. Small rabbits several days old were used. One set of animals was fed on sterilized milk to which had been added tubercle bacilli which had previously been subjected to a temperature of 100° C. for fifteen minutes; a second set of animals was fed on sterilized milk without the addition of tubercle bacilli; a third set was allowed to nurse from their mothers. Jemma states that the rabbits which had been fed on the milk containing the dead bacilli gained very little in weight and after fifteen or twenty days some of them died in a state of advanced cachexia; others continued cachectic and died of a marked degree of marasmus, even though the absorption of the bacilli had been suspended. The autopsies showed a mild enteritis, characterized by a redness of the intestinal mucous membrane and a fatty degeneration of the liver. The two control sets of rabbits neither lost in weight nor appeared at all disturbed. The conclusion is drawn that the sterilization of a tubercular milk at 100° C. cannot counteract the injurious action of the toxins, and that for infants the only milk which should be used should be that from cows which have been proved free from tuberculosis by the tuberculin test.

[11] Rev. mens. des mal. de l'enfance, 1900, vol. xviii, p. 161.

[12] Paper read before the Congrès contra la Tuberculose, held at Naples in April, 1900.

THE EXANTHEMATIC FORM OF TYPHOID FEVER IN CHILDHOOD.

Weill and Lesieur[13] describe at considerable length the chief peculiarities of this form of typhoid fever, which are the early appearance and generalization of the eruption together with the mildness or absence of digestive symptoms. In most cases there are no symptoms, objective or subjective, attributable to the digestive tract. The liver is not enlarged, the spleen not at all, or but little increased in size. In some cases, however, the digestive symptoms are more marked, but even in the severe cases they diminish or disappear when the eruption becomes generalized. The prognosis is good, recovery being the rule within fifteen or twenty days. The fever rarely continues longer than three weeks. Relapses sometimes occur, but are insignificant.

No complications were seen in this form of typhoid. Fifty-eight of these cases were seen among 280 cases of typhoid fever during six years; 22 were mild, 15 of medium severity, 12 grave, and 9 had relapses. This form is easily distinguishable from the ordinary form of typhoid in children, both mild and severe. The abundance of the rose spots is a favorable prognostic sign only if it coincides with the absence or diminution of digestive disturbances. It has the same significance even in cases which appear to be grave.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, December 4, 1900, FREDERICK PETERSON, M.D., president.

THE TERMINAL CONDITION IN A CASE OF DIPLEGIA.

DR. WILLIAM M. LESZYNSKY presented a man, twenty-one years of age, in whom the chief feature of interest was a trembling of the hands, which had existed as long as he could remember. Nothing was known of his early history except that he had always been nervous. His mother had died of cancer of the uterus. The trembling had always been more marked on the left side, and his condition was apparently growing steadily worse. On careful examination no disturbance of sensibility could be detected. There was excellent muscular development on the left side and a spinal curvature, probably arising from the use of one side more than the other. There were no signs of atrophy. There was some asymmetry of the cranium. There was no disturbance of vision, but concentric contraction of the visual field. There was no nystagmus, and the pupils and fundi were normal. There was a positive tremor when at rest, and a more active tremor on motion. He holds the left arm in extension, but close scrutiny shows that all of the rigidity is in the extensors. The elbow jerk was elicited only on the right side. Both knee jerks were exaggerated. Ankle clonus had been demonstrated on both sides, though much more marked on the left. Dr. Leszynsky said that this man had probably recovered from a paralysis that he had had at one time, and was now suffering from a terminal condition of infan-

[13] Rev. mens. des mal. de l'enfance, vol. xviii, No. 526.

tile palsy. Undoubtedly there was a good deal of functional disturbance added to the organic trouble.

DR. M. ALLEN STARR thought the case was an athetosis on the left side, and that probably the same lesion, to a minor degree, was present on the opposite side. It was apparently a post-diplegic condition.

DR. B. ONUF called attention to the lordosis and the unusual muscular development of the deltoids.

DR. E. D. FISHER also looked upon the case as one of cerebral diplegia, most marked on the left side, and with the athetoid movements often seen in such cases. This extreme muscular development seemed to him not at all uncommon in this class of cases. He would like to know concerning the electrical reactions.

DR. B. SACHS said that there could be no doubt that the left side was the centre of disturbance, and it was also probable that a part of the tremor was functional. The condition of the muscles in the scapular region seemed to him fully accounted for by the spinal curvature present.

DR. F. PETERSON agreed with the diagnosis of post-paralytic athetoid form of movement. Where the paralysis was small he thought these finer movements were more apt to be present.

DR. LESZYNSKY regarded the remarks of Dr. Sachs a sufficient answer to those of Dr. Onuf. He had not yet tested the electrical reactions. It seemed to him that this man could be benefited if properly trained. Hypnotism had been suggested, and it seemed to him worthy of trial. The method used for ataxics would probably prove beneficial; it had just been commenced.

REPORT OF TWO CASES OF SPINAL TUMOR WITH OPERATION AND REMOVAL.

DR. M. ALLEN STARR said that five years ago he had been able to collect 145 cases of spinal tumor, in 22 of which operation had been undertaken. In the cases forming the subject of the present paper the symptom pain had been very prominent, and this together with the symptoms of pressure on the cord had allowed of the diagnosis being made.

CASE I. Mrs. E. W., thirty-five years of age, had been in good health previous to March, 1899, at which time she had begun to suffer from paroxysms of pain near the heart at night. They were not brought on by exertion, but were much increased by touching a region to the left of the nipple. From September, 1899, to May, 1900, she had been treated by many physicians for angina pectoris, hysteria and other disorders. Nitroglycerin had always intensified the pain. On May 10th, Dr. Theodore Janeway had examined her, and found her in an extremely nervous condition and suffering from constant pain. The left knee jerk was exaggerated. Over the left side of the dorsal spine was extreme sensitiveness from the first to the eighth dorsal spine, and over the corresponding intercostal nerves at the angles of the ribs. There was no affection of the arms and the internal organs were normal.

When examined by Dr. Starr on October 26th, she was suffering much from pain at the level of the fifth and sixth intercostal nerves, much more marked on the left side. There was very marked tenderness over the dorsal region from the first to the seventh dorsal spine. A condition of partial anesthesia was found on the trunk and total anesthesia in the legs. Her legs were quite powerless, but there was no atrophy of the muscles. Ankle clonus was present on both sides, and both limbs were cold, blue and edematous. She had recently been unable to control the sphincters. Dr. Janeway had made a diagnosis of tumor of the spinal cord at the fifth dorsal segment.

On October 22d she was operated upon by Dr. McCosh at the Presbyterian Hospital. On dividing the dura an extremely edematous state of the pia was observed, with one white plaque lying upon it. The cord was smaller and whiter than normal, and was not pulsating. No tumor was found. Three days later the wound was enlarged upward and the dura found to pulsate freely at the upper level, but not lower down. A tumor, 1½ inches in length, lay upon the cord. It was oval, had a distinct capsule, and was removed *en masse* without difficulty. Subsequent examination showed it to be a fibroma. The cord had been reduced to about one-half its diameter beneath the tumor. No attempt was made by nature to heal the first operation wound, and in spite of great care an extensive bed sore developed over the hip. In the second week after operation the constricted feeling became less marked. The operation wound healed very slowly. In the fourth week after the operation she had constant fever, probably because of the extensive bed sores. The spinal incision healed about this time, but she died a few days later.

The autopsy showed a softened condition of the cord opposite the exit of the second dorsal nerve from the dura, and the fifth and fourth dorsal nerves could be traced into this area. Owing to the rudimentary condition of the spine of the third cervical vertebra, an error of one vertebra had been made in the count at the time of operation. The case seemed to emphasize the fact that there should be no delay in operating for spinal tumor after the diagnosis had been reached. In this case the delay had arisen from an effort to try the effect of antisyphilitic treatment, the husband being known to be syphilitic. Bed sores had developed before the operation, and had continued to extend in spite of it, and had eventually caused death from sepsis. Gumma of the spinal cord is quite rare, only 26 cases having been found in a series of 400 cases. The tumor had been found about 2 inches higher than had been anticipated. Reed's table had been used as a guide at the first operation, but according to Bruns, the operation should be done two segments above the upper limit of pain. This advice was nearer the truth in the present case. The level of the pain was about 8 inches lower than the level of the tumor; hence in operating for spinal tumor the level of the cord should be exposed at least 4 inches higher than the level of the spinal nerve in which pain is found.

CASE II. Mrs. K., forty-six years of age, had been in good health until May, 1900, when after a slight injury she had been delivered of a dead child. Soon afterward she had begun to suffer pain over the left hip, and this pain had extended down to the left knee. It had caused insomnia and progressive loss of health. In September she had noted numbness of the left foot.

On October 16th, on admission to the Presbyterian Hospital, she was pale and feeble, and seemed to be suffering from paroxysms of pain over the left trochanter and that side of the sacrum. There was a drop foot due to paralysis of the peronei and anterior tibial muscles. The bladder required catheterization, and the rectum had to be emptied by enema. There was an area of anesthesia down the back of the left thigh and leg, and a smaller area was found on the right side. Under mixed treatment the paralysis extended and the pain became more severe. An area of tenderness to pressure was found over the second, third and fourth lumbar vertebræ, and pressure here aggravated the pain in the hip. It seemed probable from these facts that there was a tumor pressing on the cauda equina, and extending as high as the level of the exit of the second lumbar nerve. The functions of the sacral nerves and last lumbar nerve were evidently affected on the left side. A diagnosis of a caudal lesion was reached because of the level of the pain.

On November 15th Dr. McCosh removed the spines and arches of the second, third and fourth lumbar vertebræ. Dissection showed a tumor involving both the soft and hard tissues of this region. The spines and arches had been eroded by the tumor, which subsequently proved to be an endothelioma. This tumor had invaded the spinal canal and produced pressure on the dura.

The patient was in a critical condition for two days after operation, but since then had improved rapidly, and had had no pain since the operation. A considerable degree of atrophy had developed in both peronei. The wound had healed perfectly and there was no evidence of recurrence. It was reasonable to hope for recovery unless there should be speedy recurrence.

Out of 145 cases of spinal tumor that he had collected, the history had been fairly clear in 122. In 76 cases an operation should have been feasible, and according to the pathological report in 75% the tumors could have been removed.

DR. A. J. MCCOSH said that he had found spinal surgery much more satisfactory than brain surgery; certainly the localization of the lesions had been more satisfactory. It was difficult to say, however, that a lesion is situated at any one segment of the spinal cord, but as a portion of the cord equal to three or four vertebræ must be exposed a slight error in localization is not of great importance. He had had recently a case presenting symptoms almost exactly like those of the first case reported in the paper. The line of anesthesia had been almost the same, but there had been no paralysis of the arms. The autopsy showed a crushing injury of the cord between the fourth and sixth cervical vertebræ. The ordinary rules laid down had indicated a lesion much lower down, and he had in this way been misled at the operation. He had not found laminectomy a very serious operation as a rule, most of the patients having exhibited comparatively little shock; hence, one should not hesitate in advising the operation when the diagnosis was sufficiently clear. He agreed thoroughly with what Dr. Starr had said about the inadvisability of delaying the operation for weeks in order to give antisyphilitic treatment a trial. He had met with a number of cases in which he believed the fatal result was attributable to such delay. When bed-sores were already present the case was practically hopeless, the patient almost invariably dying from sepsis. It is well to remember that tumors of the cord are usually found higher up than the estimated level. By beginning above and working downward, it seemed to him that the healing process would be favored. He was not of the opinion that there was any good ground for believing that the operation of laminectomy so weakens the spine as to lead to disability. Mention was made of one of his cases in which a man was engaged at an occupation requiring the frequent lifting of heavy weights, yet he had felt no inconvenience as a result of the operation upon his spinal column.

DR. PEARCE BAILEY reported this case of a man, forty-one years of age, who has been treated for some time previously for a variety of troubles. When seen in May he had stated that about fifteen months previously he had begun to have intense pain on the inner side of the left thigh. There had been an interval of a few months in which this pain had almost subsided. There was slight atrophy in the left leg; the left knee jerk was absent; there was very slight anesthesia. The case seemed to be one of tumor of the cauda equina. Dr. McCosh had operated upon him on the 22d of May. He had removed the last dorsal and the first and second lumbar vertebræ, and had exposed what had looked at first like a blood clot, but microscopical examination had proved this to be a round-cell sarcoma. Although it was probable that all of this sarcoma had not been removed, the man had done extremely well all these months; was free from pain and had resumed his occupation.

DR. SACHS coincided with those who had advised against delaying in these cases in order to try specific treatment. He was thoroughly in favor of operating just as soon as the diagnosis had been established with reasonable clearness. It was a great mistake in his opinion to look upon operation as a *dernier ressort*. Gumma of the cord was quite rare, and even in these cases very little had been accomplished by the administration of the iodides; hence, such treatment might very well be neglected. In one of his cases in which the operation had been done quite early the man had been restored promptly to health. In another case he had not been allowed to operate early, and the recovery had been far from satisfactory. It seemed to him that a little too much importance was attached to the mere matter of localization; the important question was in regard to the nature of the morbid process and whether or not a tumor is present. In Pott's disease the sensory disturbances were sometimes quite as marked as where there was a tumor of the cord. Pain was the important symptom, but this was applicable more particularly to dorsal rather than to ventral tumors. He was not prepared to speak regarding the relative frequency of these two forms of tumor. He was of the opinion that a very extensive laminectomy could be done without causing notable disability or deformity. Early operation, he felt sure, would make spinal surgery much more satisfactory than brain surgery.

DR. THEODORE C. JANEWAY said that he regretted very much that in his cases the diagnosis of spinal tumor had not been made sooner. There had been pain a year previously, but the pain had disappeared for a considerable time, and when he had first seen her she had been so extremely nervous that the question of hysteria had been seriously considered at first. The case had progressed very rapidly during the part of the summer in which he had not seen her.

AN ANALYSIS OF THE SYMPTOMS OBSERVED IN CASES OF TUBERCULOUS MENINGITIS AT THE BABIES' HOSPITAL.

DR. C. A. HERTER read a paper with this title. There were 24 cases of tuberculous meningitis, and in 15 of these there were autopsies. In these 15 cases, 6 were at the age of eight months; 7 were one year old or under. In 9 cases of tuberculous meningitis without autopsy, 6 were five months old. These figures showed that tuberculous meningitis was not so rare in the first year of life as had been supposed by some writers. Nineteen of the cases had run their course in less than one month. The fontanelle had been markedly distended in 7 of the 24 cases, and in 3 there had been a marked excess of fluid found at autopsy. In 1 case the fontanelle had been depressed — a case sick for four or five months. In 6 cases there had been a delay in the closure of the fontanelle. Vomiting had been noted in 19 of the 24 cases, and had been the first symptom in 14 cases. In 5 in which there was no vomiting the autopsy showed nothing different from the cases that had presented vomiting. In 11 cases there had been marked constipation. In cases coming to autopsy there had also been tuberculous lesions in the intestine. In several of the cases there were tuberculous ulcers of the colon, and yet

constipation instead of diarrhea had been present. The pupils were unequal in 12 of the 24 cases, and dilated in the others. The pupils were contracted in only 2 cases. Nystagmus was observed in 4 cases, and strabismus in 10 cases. In the cases showing strabismus there were marked lesions at the base and in the interpeduncular space. There were general convulsions in 50%. There was no case which did not present either rigidity or convulsions. In cases without meningitis, but with tubercles in the brain, convulsions were not so common. Paralysis was noted in 10 of the 24 cases of tuberculous meningitis, and was monoplegic in a number. The variability of these palsies was a rather notable feature. In the cases without meningitis, but with tubercles in the brain, no palsies or paralyses were noted. The *tâche cérébrale* was noted in 7 cases and flushing of the face in 10 cases. All the cases of tuberculous meningitis with autopsy had presented stupor or coma, or more or less irregularity of respiration, while these had not been observed in any of the cases with tubercles, but without meningitis. Hyperesthesia had been noted in only 1 case, and in only 1 had there been a well-developed cephalic cry. Retraction of the abdomen had been noted to a greater or less degree in 15 of the cases of tuberculous meningitis, but not at all in the other cases. The fever had not been high in the uncomplicated cases, and the pulse had shown nothing distinctive. In the cases without meningitis marked opisthotonos and convulsions had been the rule, and early vomiting had been much less frequent than where meningitis was present. Only 2 or 3 of the cases had presented solitary tubercles. In all of the autopsy cases the cerebral tuberculosis had been clearly secondary. The intestine was the seat of tuberculous lesions in 11 of the 13 cases in which the intestine was examined. The knee jerks were increased in a large proportion of cases, and absent in only 2. An interesting feature was that at times the knee jerks would be alternately exaggerated and absent.

DR. LESZYNSKY said that he had made some observations in children under three years with regard to the knee jerk, and had noted that in the early stages the knee jerks had seemed to be absent, but as soon as the pressure symptoms appeared the knee jerks became exaggerated and remained so until death.

DR. SACHS said that the diagnosis of tuberculous meningitis was usually delayed by the general practitioner because he overlooked, as a rule, the cranial nerve symptoms so commonly found quite early in these cases, and waited for some of the more common and typical symptoms. He would like to know whether examination of the fundus and lumbar puncture had been of any diagnostic aid.

DR. HERTER replied that lumbar puncture had been practised in a few instances, and in 2 or 3 tubercle bacilli had been found. The examination of the fundus had been undertaken in so few cases that no deductions could be made. None of the cases diagnosticated as tuberculous meningitis had recovered.

DR. SACHS said that in a series of cases of sporadic meningitis lumbar puncture had been made, and the diplococcus had been found in almost every instance. He had been surprised also at the large number of recoveries in these cases of sporadic meningitis in which the diplococcus had been found. Their clinical course had been greatly at variance with the older descriptions of cerebrospinal meningitis. The onset had been very violent, the fever lasting often a week or more, and then recovery was rapid.

DR. HERTER said that in the cases he had seen there had been a much more violent onset than in tuberculous meningitis.

Recent Literature.

Diseases of the Eye. By EDWARD NETTLESHIP, F.R.C.S., Ophthalmic Surgeon at St. Thomas's Hospital, London; Surgeon to the Royal London Ophthalmic Hospital, etc. New (sixth) American from the sixth English edition, thoroughly revised by WILLIAM CAMPBELL POSEY, M.D. With a Supplement on the Detection of Color Blindness by WILLIAM THOMSON, M.D., Professor of Ophthalmology in the Jefferson Medical College, Philadelphia. Just ready. Pp. 562, with 192 illustrations, and 5 colored plates. Philadelphia and New York: Lea Brothers & Co. 1900.

Mr. Spicer so well accomplished a revision of the sixth edition three years ago that it has been thought well to offer still another, which, however, comes to us from Dr. William C. Posey. In this recent volume attention has been given especially to the methods of examination and the therapeutic measures employed by practitioners in this country, and although the subject matter, as a whole, shows but little change, all that is new regarding the bacteriological origin of certain diseases has been introduced. Dr. Thomson has thoroughly revised his section relating to the visual tests for railroad employés, while in an appendix will be found a concise statement of the laws governing the visual tests for admission into the public services of the United States, which have been obtained from the authorities at Washington, and are for the first time presented in a collected form. The methods employed in examining the eyes of school children in different American cities have been added.

The Treatment of Fractures. By W. L. ESTES, A.M., M.D., Director and Physician, and Surgeon in Chief of St. Luke's Hospital, South Bethlehem, Pa. Pp. 220. Illustrated. International Journal of Surgery Co. 1900.

This book discusses the treatment of fractures. The "mechanics" of fractures are considered only when necessary to elucidate or suggest proper treatment. The writer holds that reduction of deformity and fixation is not the whole treatment of a fracture, but that the entire condition, local and general, and every indication must be borne in mind. His data for this volume, he states, have been derived from a review of modern authorities and a personal experience of fifteen years of hospital work.

The book is indexed, but is not divided into numbered chapters, and contains no "table of contents." The classification made is an anatomical one. After a few pages devoted to treatment in general, the main part of the book is devoted to the consideration of specific fractures, arranged in the following order: Cranium, face, trunk, upper extremity, lower extremity. The concluding pages deal with compound and complicated fractures.

The book contains many practical suggestions and many truths. It is a presentation of personal ideas and convictions rather than a discussion of the subject from a broad standpoint.

The author has had apparently a large experience in the treatment of railway and machinery accidents. His description of his methods in dealing with these severe and often extremely complicated injuries, not only the emergency or "first-aid" handling of the patient, but also the full or permanent treatment of the case, is full of excellent ideas. His results as published show that of 67 cases of complicated fractures of the extremities of all degrees of severity, 54 recovered with useful limbs; in 9 patients the limb was saved but with its function not fully restored; 2 subsequently required amputation and 1 died. This is an excellent record, and a demonstration of a method which justly claims careful consideration. The aseptic and operative technique as described is good, but in some details differs from that employed by many surgeons.

In regard to the treatment of simple fractures, also, the writer's experience and personal study of the conditions encountered have developed points relating to mechanical indications for and varieties of apparatus, bandages, etc., which are always of interest, at least, if not of value. He is apparently one who has done his own thinking, and not followed passively and blindly the routine road.

Kurzgefasstes Lehrbuch der Kinderheilkunde für Aerzte und Studirende. Von DR. CARL SEITZ, a. o. Universitätsprofessor und Vorstand der Kinderpoliklinik am Reisingerianum in München. Pp. viii, 499. Second enlarged and entirely revised edition. Berlin: S. Karger. 1901.

In the preface to the first edition the author stated that his object was to describe the various diseases of children as completely as possible, and yet as briefly as practicable. He has certainly accomplished this object most admirably. The book is not a small one, as the title would suggest, but a good-sized volume. In this second edition it has been thoroughly revised and in many places entirely rewritten. We know of no book on the diseases of children which contains more condensed, accurate and up-to-date information than the one under consideration.

The book is divided into two parts; the first dealing with general considerations, the second with special diseases.

In the first part the first chapter treats of the anatomical and physiological peculiarities of children, and is remarkably good. The second deals with the care and feeding of infants. The general remarks regarding the digestion and feeding of infants are excellent; the methods of feeding, however, are not up to the best standard of this country. The third chapter, describing the methods of physical examination in children, is admirable, and one of the best we have seen on this subject. The next chapter, dealing with the treatment of sick children, is not as good as the others. In fact, throughout the book the weak point is treatment.

The chapters of the second part, in which special diseases are described, are so uniformly good that it is difficult to discriminate. The classification of disease is, on the whole, very satisfactory, although we hardly see why myxedema, Graves's disease, and the various anemias should be grouped among the "general diseases." The strongest point in this part of the book is the differential diagnosis. In diagnosis the greatest stress is laid, as it should be, on physical examination and not on symptomatology. The modern methods of laboratory diagnosis are all mentioned and their importance and usefulness emphasized. The sections dealing with physical diagnosis are excellent, and worthy of careful study.

The work is certainly a most admirable one, and well worthy of a place among the most used books of both the student and the practitioner.

Ringworm in the Light of Recent Research. By MALCOLM MORRIS. With 22 microphotographs and 1 colored plate. London, Paris and Melbourne: Cassell & Co. 1900.

This work of Morris's has only just reached us, but it is not too late for a word of recognition of its merits. Mr. Morris has made investigations of his own on the subject of ringworm, and has reached the conclusion that there can be no doubt of the plurality of the ringworm fungi, although he is by no means prepared to accept all the subdivisions and varieties proposed by Sabourand and others. His opinion is that, "There are at least two, probably three, possibly more, distinct species of fungi which produce the disease in different cases." The work gives an admirable epitome of our present knowledge of ringworm and of the recent advances that have been made in its investigation. The microphotographs are of very great value. There are some interesting chapters on diagnosis and treatment, and on the prevention of the affection in schools.

A Compend of Diseases of the Skin. By JAY F. SCHAMBERG, A.B., M.D. Second edition, revised and enlarged, with 105 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

This second edition of Schamberg's "Quiz Compend of Diseases of the Skin" has just appeared, revised and enlarged, with the addition of a number of new photographs. Its merits are not beneath those of the very numerous similar publications that are constantly appearing.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D. (Yale), Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's and Christ's Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Third edition, revised and enlarged. With 336 illustrations and 32 plates in monotint. New York and Philadelphia: Lea Brothers & Co. 1900.

This is the third edition of this book. In the second edition the book was largely rewritten and important additions have been made to this last edition. The part which deals with fractures, especially in the classification and arrangement of the chapters on fractures of the skull, has been essentially rewritten. The chapter on the advance of our knowledge on the traumatic hematomyelia is, in this edition, well presented and forms an important addition to our knowledge of the prognosis and treatment of injuries of the spinal cord.

The book is well illustrated, a number of new plates

having been added, principally of skiagrams. There are still many ancient and respected cuts of fractures and forms of splints which do not add essentially to the value of the book.

Dr. Stimson's work on fractures and dislocations is now an authority. It is a book which can be turned to by any one who wishes to make a thorough research in any given subject. It is judiciously written and well presents the known knowledge of this important subject. The experience gained in the House of Relief (Hudson Street Hospital) "where traumatic cases are so numerous as to include all the ordinary forms of injury, and most of those which are rare" will, we hope, allow the writer to replace some, at least, of the cuts which are only time-honored and are not of any great value.

A Manual of Operative Surgery. By LEWIS A. STIMSON, B.A., M.D., Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's and Christ's Hospitals; Professor of Surgery in Cornell University; Corresponding Member of the Société de Chirurgie, Paris, and JOHN ROGERS, JR., B.A., M.D., Surgeon of Gouverneur Hospital, New York; Instructor in Surgery, Cornell University. Fourth and revised edition, with 293 illustrations. Philadelphia: Lea Brothers & Co. 1900.

This octavo volume of 582 pages has now reached its fourth edition. It is an excellent, condensed handbook of operative surgery. The descriptions of operations are simple and definite, governed by the author's experience, and, while the larger books give more lengthy descriptions, yet in many instances the descriptions are all sufficient to one who is somewhat familiar with operative surgery. Except for completeness we see no particular advantage in including operations of the eye and ear in a book of this description. However. the book is undoubtedly constructed for the use of general practitioners, who may be called upon to do any and all operations. The book is fairly well illustrated, and, as the author says, many of the ancient cuts have been eliminated.

Surgery, its Theory and Practice. By WILLIAM JOHNSON WALSHAM, F.R.C.S. (Eng.), M.B. and C. M. (Aberd.), Surgeon and Lecturer on Surgery, St. Bartholomew's Hospital; Member of Court of Examiners, Royal College of Surgeons of England; Consulting Surgeon to the Metropolitan Hospital, to the Hospital for Hip Disease, Sevenoaks, and to the Cottage Hospital, Bromley; late Surgeon in Charge of the Orthopedic Department and Lecturer on Anatomy, St. Bartholomew's Hospital; Examiner in Anatomy to the Conjoint Board of the Royal College of Physicians and Royal College of Surgeons. With 483 illustrations, including 16 skiagram plates. Seventh edition. Philadelphia: P. Blakiston's Son & Co. 1900.

This is the seventh edition of this book. The author has rewritten many of the sections and much of the material which had become obsolete has been omitted. Many skiagrams have been introduced and evidently great care has been taken to bring the book up to date. As a condensed presentation of the subject of surgery, it is only fairly satisfactory, many of the methods and much of the apparatus being antiquated.

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THE BOSTON MEDICAL LIBRARY.

THE formal opening of the new building of the Boston Medical Library which took place Saturday evening, January 12th, was an event the full significance of which we are as yet not fully able to appreciate. Boston has for many years struggled to maintain a creditable library in a building which had become wholly inadequate and in a situation whose character had so changed as to justify its being not inaptly described by one of the speakers of the evening as a "diverticulum of hidden dangers, a Bohemian midway pleasance." To be suddenly transferred from this unfortunate position to its present location on one of the city's most attractive streets, commanding a view of exceptional beauty, is a transformation which the most sanguine believer in the fitness of things could contemplate only with satisfaction tempered by surprise. How this was accomplished was told in detail at the exercises attending the opening of the new building, the full report of which is given in other columns of this issue. We will only emphasize here the good fortune of the building committee in being able to command the devoted services of a medical colleague, Dr. Farrar Cobb, with large experience in the details of the construction of buildings for medical institutions; he, in great measure, wrought the miracle of providing an architectural product at less than estimated cost.

As was to be expected, the attendance at these exercises was large and representative; it is perhaps more worthy of comment that the various addresses and remarks made by the chosen speakers were most admirably suited to the occasion, and did not once lapse into the commonplace. They were throughout dignified, at times humorous, but never tiresome. Dr. Wood, of Philadelphia, was the only absentee, but we have fortunately not thereby lost his address. The exercises were held in the large upper hall, as yet unfinished; its bare walls and girders were a mute but eloquent appeal to the assembled audience to provide at no distant time for the proper adornment of this

important room, for which the modest sum of $5,000 is required.

In striking contrast to this commodious but as yet incomplete hall is the main reading room, which is to be known as Holmes Hall, in honor of the steadfast friend and first president of the library. No doubt many deserve the credit for this room, but to whomsoever credit is due, there can be no question that it is a success from every point of view. Dr. Holmes is evidently the presiding genius, for his portrait looks down from one end and his bust from the other, while everywhere are further reminders of Boston's literary doctor — many of them due to the fostering foresight of Dr. Chadwick. It was hard to believe that this room had not been in use for years, so assiduously had its shelves been filled with books, and its various decorations completed. The recently acquired collection of medical medals presented by Dr. Storer will when finally in place afford a unique object of interest to Holmes Hall.

The skilful arrangement of the smaller rooms to be used for various purposes connected with the library — among them Sprague Hall, for the smaller meetings of medical societies — reflects equal credit upon the designers of the building. It is, in fact, hard to see how the most ambitious among us could demand a more elaborate and complete receptacle for our books and medical treasures of all sorts, or a more satisfactory literary workshop. Even Dr. Billings, who knows whereof he speaks, comforted us with the assurance that we "may rest satisfied for several weeks to come."

True as all this is, and justifiable as are self-congratulations at this time on what has been so successfully accomplished, the fact must not for a moment be lost sight of that much more remains to be done; that with new privileges come new responsibilities of a very definite sort. The library must be supported as never before; it must continually have new books, and widen its scope of usefulness in every possible direction. To this end a renewed interest must be taken in its affairs by every one, whether remotely or intimately connected with it, an interest which, no doubt, the new building will do much to stimulate.

A suggestion in this line was made both by Dr. Wood, speaking for the College of Physicians of Philadelphia, and by Dr. Chadwick, Librarian of the Boston Library. Both of these gentlemen urged the desirability of widening the scope of the library with the view of establishing ultimately an association of physicians, whose voice would have weight in other matters than those pertaining merely to books. This means a very distinct expansion over the organization which at present exists. Dr. Chadwick urged that the library henceforth invite men working in allied fields to form a part of the proposed larger association, which then might properly assume the name and the obligations of an academy. The library should thereby become the real centre of the medical activity of the entire State, or we might go still further and say, of New England. It is clear, as Dr. Chadwick said, that the subject is a large one, demanding careful consideration and active enthusiasm before such a general plan may become an accomplished fact. In the meantime it behooves us to recognize our new responsibilities and by all ways in our power to enhance the usefulness of the library merely as a library, and also by broadening the present organization lay at least the foundation of an institution which shall represent the widest medical interests. We are confident that such a consummation is both possible and desirable.

THE RESPONSIBILITY OF THE DOCTOR.

We have recently been edified by somewhat heated accounts in certain of our daily contemporaries regarding the alleged unjustifiable action of several physicians, who refused attendance upon a dying man. Beyond the sensational newspaper reports we know nothing of the actual facts of the case. A man died from suffocation due apparently to the lodgment of food in the larynx; several physicians were summoned in haste; it is claimed that they declined to go; the man was beyond relief when a doctor finally arrived on the scene, but we are led to suppose that his life might have been saved had skilled assistance been immediately obtainable. One of the physicians summoned is said to have expressed his willingness to respond to the call, if he were paid a small fee in advance.

Whatever the merits of this particular case may have been, there is clearly involved in the incident a principle of importance. It is generally assumed by the laity that a physician is bound to respond to a call for his services whenever made, and however inconvenient to himself, regardless of a possible fee. It goes without saying that physicians usually live up to this assumption, hence the popular clamor when for any reason they assert their prerogatives as free men, and decline their services. It is a notorious fact, and one which every individual's experience demonstrates, that the business standards which regulate payment for services rendered are peculiarly inoperative in the case of physicians. Some people, not all by any means, have an extraordinarily lax conscience when the doctor presents his bill. Is it to be wondered at, therefore, that even doctors occasionally turn, and request a preliminary guarantee of the honesty of their patients, and particularly when those patients are wholly unknown to them? This, as a general practice, we should deprecate; it is not at all likely, nor is it desirable, that the lawyer's retainer, for example, be adopted as a routine practice by the physician, but it is equally evident that a doctor is quite within his right when he makes such a demand, and especially is this true of the emergency case. It is altogether desirable that people at large should be made to feel that a physician's services have a money value, which

must under all conditions be respected. How far we are from this state of things is evident from the popular clamor which an incident like the foregoing excites. The physician's side of the question is quite forgotten in sympathy for the unfortunate man who died.

It is a gratification to quote the following reasonable remarks from the editorial columns of a lay journal. "They (doctors) are almost completely at the mercy of the public and the public shows them little mercy in return for their ofttimes merciful attention. At any hour of the day or night the doctor is expected to be ready to answer rush calls for medical attendance, and is not surprised when, in return for his services, he gets nothing more substantial than promises, the majority of which are never fulfilled. Is it to be wondered at that, after meeting with hundreds of such experiences, he decides to refuse emergency calls from strangers unless he makes certain of at least a small recompense? To such an extent is this disregard of obligation to medical men carried that it is surprising that most of them are so generous with their time and services."

MEDICAL NOTES.

Smallpox. — On January 9th 267 cases of smallpox were reported in the State of Kansas. The disease is of a more severe type than existed last winter. In the city of Galveston, Texas, there are a number of cases of smallpox. The disease was probably brought to Galveston by the influx of a large number of country negroes. Every bale of cotton, also, that comes from the Senegambia district is liable to convey the malady and several cases have been traced to this source. General vaccination is being strongly urged. The disease is not of a virulent type.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, January 16, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 143, scarlatina 39, measles 62, typhoid fever 16.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending January 12th was 233 as against 240 the corresponding week last year, showing a decrease of 7 deaths, and making the death rate for the week 21.67. The deaths from consumption were 29, pneumonia 35, whooping cough 1, heart disease 19, bronchitis 9, marasmus 5. There were 12 deaths from violent causes. The number of children who died under one year was 42, under five years 68, persons more than sixty years 57; deaths in public institutions 56.

Cases of Infectious Diseases Reported in 1899 and 1900. — Diphtheria and croup, 1900, 4,977; 1899, 2,836. Scarlet fever, 1900, 1,710; 1899, 1,381. Phthisis pulmonalis, from May 17, 1900, 815; 1899, ——. Typhoid fever, 1900, 730; 1899, 765. Measles, 1900, 2,465; 1899, 4,110. Total number of deaths, 1900, 11,678; 1899, 11,167. Rate per one thousand, 1900, 20.82; 1899, 20.12. Diphtheria and croup, 1900, 537; 1899, 304. Scarlet fever, 1900, 181; 1899, 74. Typhoid fever, 1900, 143; 1899, 165. Measles, 1900, 88; 1899, 33. Phthisis pulmonalis, 1900, 1,407;[1] 1899, 1,236.

Appropriation for the Rutland State Sanatorium for Tuberculosis. — The Massachusetts State Board of Charity has reported to the legislature recommending an appropriation of $110,000 for a building at the Rutland Sanatorium to provide for 250 patients instead of 200 as at present. This includes provision for an administration building, for a laboratory and other much needed details. The report recommends that the institution be visited regularly by the board.

Diphtheria and Scarlet Fever Statistics, Somerville, Mass. — The Somerville Board of Health reports 520 cases of diphtheria and 231 of scarlet fever for 1900. The number of deaths was 967, showing an increase of 166 over 1899. There is still a large number of diphtheria and scarlet fever cases in Somerville.

Glanders in South Framingham. — Considerable agitation exists among farmers over the reported existence of glanders in the district about South Framingham, Mass. The Massachusetts Cattle Commission is making an expert investigation of the source of the infection.

Smallpox in Bridgeport, Conn. — Precautions are being taken to prevent a threatened epidemic of smallpox in Bridgeport. The health officers have established compulsory quarantine for all suspected cases. The disease is supposed to have been introduced from New York.

NEW YORK.

Superintendent of Bellevue. — Dr. George Taylor Stewart, for several years past superintendent of the Metropolitan Hospital on Blackwell's Island, has been appointed by Charities Commissioner Keller to the superintendency of Bellevue, Harlem, Gouverneur and Fordham hospitals. The former superintendent of Bellevue, Mr. O'Rourke, has been appointed deputy superintendent under Dr. Stewart. Dr. Robert W. Hill, who was detailed by the State Board of Charities to investigate conditions at Bellevue Hospital, on January 9th made a report in which he severely criticised the management of that institution. In the course of it he said: "Outside of the medical staff there seems to have been no pride in the service, and in consequence the whole tone of the institution has been very low. The investigation has shown that the whole system at Bellevue has been radically wrong.

[1] This includes general tuberculosis.

Nothing save a complete change throughout the staff of employés will be satisfactory, for with a few notable exceptions, inefficiency, callousness and idleness characterize those who are employed to do the work of the hospital. The tests of efficiency and zeal, of character and sobriety, have not been applied, and it is by these that the new superintendent can make Bellevue what it should be — a model hospital. New buildings are needed, but a new spirit and motive far more."

SMALLPOX AND VACCINATION. — Recently a mail carrier was found in the Melrose Lodging House on upper Third Avenue, suffering from smallpox. The Health Board officials promptly removed the patient and vaccinated every one in the building with the exception of two lodgers who refused vaccination. About a week afterwards, on January 8th, one of these men was attacked by smallpox, and on the following day the other, while of the many others who were equally exposed to the disease not one has as yet contracted it. The total deaths from smallpox since the beginning of the present outbreak now number 16.

INFLUENZA. — In consequence of the prevalence of influenza the Hospital Saturday and Sunday Association has issued a special appeal to the public for prompt and generous contributions for the thirty-nine hospitals which it represents, in order to enable them to meet the extraordinary expenses incidental to the epidemic, which has prostrated a large number of nurses and helpers. During the week ending January 6th, 1900, 8 deaths from influenza were reported in the city. In the corresponding week of this year there were 36.

TUBERCULOSIS AT THE ELMIRA REFORMATORY. — According to the report of the new Board of Managers of the Elmira Reformatory, tuberculosis has increased to an alarming degree among the prisoners, and the spread of the disease is attributed largely to the laxity of the prison physicians in not carefully examining the physical condition of the convicts on their arrival and in not separating the healthy from the diseased. The report also shows that insanity is on the increase in the institution.

STATE HOSPITAL FOR TUBERCULOSIS. — On January 10th the State Board of Health and the State Forest Preserve Board announced their approval of the site finally recommended by the trustees of the State Hospital for the Treatment of Incipient Pulmonary Tuberculosis for that institution. It is located at Raybrook, three miles southeast of Saranac village, and embraces 521 acres; while most of the property immediately adjoining is State land.

ALLEGED CENTENARIANS. — John Magee, born in Ireland January 1, 1800, died in Brooklyn January 9th. Nicholas McQuillen, also born in Ireland, died at Southold, Long Island, on January 11th, at the reputed age of one hundred and three. Mrs. Lucy Pollard, of New Brunswick, N. J., a pensioner of the War of 1812, in which her husband fought, died on January 10th, at the age of one hundred and one.

PRIVATE SANITARIUM FOR TUBERCULOSIS. — The first meeting in aid of the Stony Wolde Sanitarium for consumptive women and children was held at the residence of Dr. George F. Shrady, on December 10th, and was addressed by Dr. H. M. Biggs and others. It is proposed to raise a fund of $100,000, and purchase a hotel and cottages already built at Kushagua Lake, Franklin County, in the Adirondacks.

COLUMBIA UNIVERSITY. — At the monthly meeting of the trustees of Columbia University, held January 7th, the following appointments were announced in the Medical Department: Dr. James D. Voorhees, secretary of the faculty; Dr. Ernest V. Hubbard, assistant in pathology; Dr. Stuart P. Jessup, assistant in normal histology.

CARNEGIE LABORATORY. — At the meeting of the Council of the University of the City of New York, held the same day, it was announced that the alterations in the Carnegie Laboratory had been completed. The upper portion has been rebuilt, and the entire building refitted for the purposes of a bacteriological laboratory, through the generosity of Mr. Carnegie, the original donor.

MEDICAL ASSOCIATION OF GREATER NEW YORK. — At the annual meeting of the Medical Association of the Greater City of New York, held January 14th, Dr. J. Blake White was re-elected chairman for the Borough of Manhattan. The membership of the society, which by its bylaws is limited to 500, now amounts to 416.

Miscellany.

THE STUDY OF PSYCHIATRY IN NEW YORK STATE.

AT a meeting of the New York Neurological Society held January 1, 1901, the following report was read and unanimously adopted: The committee of the New York Neurological Society, appointed at the request of the president of the New York Commission on Lunacy, to offer suggestions as to a scheme of scientific study of mental diseases in connection with the State hospitals for the insane, begs leave to report as follows:

(1) It is to the interests of the State that original research work should be carried on in relation to insanity, in order that the science should be advanced, and better methods of prevention, treatment and cure discovered. This is of direct interest to the taxpayer, upon whom falls the burden of the care of the insane.

(2) There should be one central laboratory in the State, wherein the energies of the best scientific men in the various departments of medicine related to insanity should be devoted wholly and exclusively to the prosecution of original research.

(3) Such a laboratory, combining the labors of well-qualified workers in general pathology, neuro-

pathology, psychology, chemistry, anthropology, and other requisite branches, should be able to produce from year to year results which would be creditable to the State as a patron of science, as well as invaluable in advancing the knowledge of the methods of treatment and cure of mental disorders.

(4) Each hospital for the insane should have upon its staff of medical officers one physician whose sole duty it should be to conduct ordinary autopsies and to carry on the routine duties of a clinicopathological microscopist.

(5) The central laboratory, or pathological institute, should be freely open to any qualified scientific men, for the prosecution of original research work, under the direction of the laboratory experts, preference always being given to the qualified men in the State hospitals. But systematic teaching of fundamental principles should not be required from any of the departments of the laboratory. The scientific men in charge of the various departments of the pathological institute should devote all their energies to original investigation, and not be taxed, hampered, or interfered with by medical men who are able to obtain instruction in fundamental principles elsewhere, without cost to the State.

(6) The central laboratory for original research should be a part of a reception hospital for the insane, situated on Manhattan Island. — *Medical Record.*

CACODYLATE OF SODIUM AS A "CURE" FOR PHTHISIS.

THE *Medical Press and Circular* comments as follows upon the new preparation known as cacodylate of sodium, which has been used for other disorders than tuberculosis of the lungs, and is certainly to be regarded as a preparation to be used with caution:

"Of all the so-called 'cures' for consumption that have been foisted on much defrauded humanity none can be more dangerous than the cacodylate of sodium. As a matter of fact that compound, which contains no less than 55% of arsenious acid, is advertised in the public newspapers as a harmless cure for all stages of consumption. Dr. Murrell has put the matter to the test by prescribing 1 grain of the cacodylate thrice daily to a patient suffering from advanced lung tuberculosis. This small dose produced dangerous symptoms of arsenical poisoning, and, needless to say, left the tuberculous mischief unaffected. In his original paper advocating the use of the drug Gautier advocated the use of .75 gramme hypodermically several times a day, and stated that no arsenical poisoning resulted. Similar large doses (10 grains) are actually advised by the druggists who are advertising the cacodylate of sodium in the general press as a 'cure' for consumption. In view of Dr. Murrell's experience it is clear that the vendors of this fallacious and dangerous remedy are incurring a most serious responsibility. After the publication of this timely warning by an eminent authority upon the action of poisons, no druggist selling the cacodylate otherwise than on prescription can be absolved from any evil consequences that may follow from the administration of the drug. It is hardly possible to give too much publicity to the facts of this death-trap remedy, which affords a striking proof of the danger of self-medication."

Correspondence.

THE SUPRARENAL CAPSULE IN ORGANIC HEART DISEASE.

NEW YORK, January 7, 1901.

MR. EDITOR: I intend to publish a second paper on the use of the suprarenal capsule in organic heart disease. Will you kindly ask the readers of your JOURNAL to send me the reports of their cases as follows: (1) The condition of the heart and pulse rate; (2) the effect on the heart and pulse and pulse rate within ten minutes after the suprarenal powder, three grains, is chewed and swallowed, without water, by the patient.

Yours truly,

SAMUEL FLOERSHEIM, M.D.

218 East 46th Street.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 5, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1405	351	20.07	22.62	1.28	1.28	3.63
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	453	106	25.63	13.48	.66	2.53	4.42
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	186	65	23.67	13.45	.10	.22	.11
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	105	39	33.33	28.56	—	12.37	3.80
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	69	17	26.10	14.50	—	4.35	4.35
Boston	560,892	239	64	25.08	18.39	1.67	1.67	9.20
Worcester	118,421	44	13	20.43	6.81	2.27	4.54	6.81
Fall River	104,863	—	—	—	—	—	—	—
Lowell	94,869	32	9	28.13	21.88	—	—	9.38
Cambridge	91,886	15	3	40.00	13.33	—	—	13.33
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,559	29	11	17.24	6.89	—	—	3.45
New Bedford	62,442	27	10	18.50	18.50	—	—	—
Springfield	62,059	17	—	11.76	23.52	—	5.88	—
Somerville	61,643	20	4	35.00	10.00	—	—	15.00
Holyoke	45,712	—	—	—	—	—	—	—
Brockton	40,063	3	1	33.33	—	—	—	—
Haverhill	37,175	10	2	30.00	10.00	—	—	20.00
Salem	35,656	13	4	7.69	30.76	—	—	7.69
Chelsea	34,072	8	—	—	—	—	—	—
Malden	33,664	9	3	11.11	11.11	—	—	—
Newton	33,587	14	4	14.28	14.28	—	—	—
Fitchburg	31,531	9	2	22.22	22.22	—	—	—
Taunton	31,036	12	3	16.67	16.67	—	—	—
Gloucester	26,121	2	1	50.00	—	—	—	—
Everett	24,336	9	4	—	22.22	—	—	—
North Adams	24,200	5	2	60.00	—	—	—	—
Quincy	23,899	7	—	28.57	—	—	—	—
Waltham	23,481	7	2	42.85	—	—	28.57	14.29
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	9	2	33.33	—	—	—	11.11
Medford	18,244	—	—	—	—	—	—	—
Newburyport	14,478	5	1	—	20.00	—	—	—
Melrose	12,962	4	—	—	—	—	—	—

Deaths reported 2,777; under five years of age 726; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 624, acute lung diseases 531, consumption 321, diphtheria and croup 121, typhoid fever 63, diarrheal diseases 41, scarlet fever 28, whooping cough 14, cerebrospinal meningitis 7.

From whooping cough Philadelphia and Pittsburg 3 each, New York and Boston 2 each, Providence, Worcester, Somerville and Chicopee 1 each. From cerebrospinal meningitis Pittsburg and Boston 2 each, Philadelphia, Gloucester and North Adams 1 each. From scarlet fever New York 18, Boston 4, Philadelphia 3, Baltimore 2, Worcester 1. From typhoid fever New York 18, Philadelphia 16, Pittsburg 13, Baltimore and Boston 4 each, Providence 3, Worcester and Waltham 2 each, Springfield 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,296, for the week ending

December 22d, the death rate was 16.1. Deaths reported 3,590: acute diseases of the respiratory organs (London) 396, diphtheria 103, whooping cough 76, fever 52, measles 46, diarrhœa 39, scarlet fever 33.

The death rates ranged from 10.1 in Derby to 22.3 in Birkenhead: Birmingham 17.5, Brighton 15.1, Bristol 15.2, Cardiff 14.5, Croydon 13.9, Gateshead 15.3, Halifax 15.5, Hull 15.3, Leeds 15.6, Liverpool 19.6, London 15.7, Manchester 18.9, Newcastle-on-Tyne 16.2, Norwich 12.3, Nottingham 15.7, Oldham 17.3, Plymouth 12.8, Portsmouth 13.4, Salford 22.2, Sheffield 18.8, Sunderland 15.2, Swansea 17.8, West Ham 11.6.

METEOROLOGICAL RECORD

For the week ending January 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...30	29.93	37	46	28	60	75	68	S.W.	S.W.	9	7	C.	O.	
M..31	29.77	40	43	37	96	86	91	N.W.	S.W.	6	7	R.	O.	.44
T ...1	30.26	30	42	19	68	58	63	W.	N.W.	12	15	O.	C.	
W...2	30.49	24	32	17	59	42	48	S.W.	W.	8	12	C.	C.	
T ...3	30.67	14	23	6	45	33	39	N.	S.W.	14	6	C.	C.	
F ...4	30.23	22	32	12	61	43	52	S.W.	S.W.	12	12	C.	C.	
S...5	30.27	24	30	19	77	32	54	N.	W.	8	12	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 12, 1901.

F. ANDERSON, surgeon, ordered home and to wait orders, when recruiting duty is completed.

C. H. T. LOWNDES, surgeon, detached from the Naval Academy, January 14th, and ordered to the "Lancaster," *via* steamer from New York City of January 19th.

O. DIEHL, surgeon, detached from the "Lancaster" and ordered home and to wait orders.

B. R. WARD, passed assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., January 17th, and to the Boston Yard.

J. B. DENNIS, assistant surgeon, ordered to the Naval Academy, January 14th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 10, 1901.

WASDIN, EUGENE, surgeon. Granted leave of absence for fifteen days from January 14th. January 5, 1901.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Fontainebleau, Miss., for special temporary duty. January 5, 1901.

STIMPSON, W. G., passed assistant surgeon. To proceed to Cripple Creek, Col., for special temporary duty. January 4, 1901.

NYDEGGER, J. A., passed assistant surgeon. To proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters. January 5, 1901.

DECKER, C. E., assistant surgeon. Granted seven days' extension of sick leave from January 4th. January 7, 1901.

ANDERSON, J. F., assistant surgeon. Having been assigned to duty in the Immigration Service at Liverpool, Eng., relieved from duty in the U. S. Consulate at that port. January 5, 1901.

WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for three days. January 8, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the society will be held in Sprague Hall at the Medical Library Building on The Fenway, on Monday, January 21st, at 8.15 P. M.

Paper by Dr. James G. Mumford, "The Story of the Boston Society for Medical Improvement."

Remarks by Drs. James C. White, Morrill Wyman, Clarence J. Blake, Reginald H. Fitz, George B. Shattuck.

All interested in the medical history of Boston are invited to be present.

ARTHUR K. STONE, M.D., *Secretary*, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet on Wednesday, January 23, 1901, at 8 P. M., in Sprague Hall, Boston Medical Library Building, 8 The Fenway.

Papers: Dr. H. O. Marcy, "Gynecology: Its Contribution to General Surgery."

Dr. Emma L. Call: "An Emergency Case of Cesarean Section in a Face Presentation Complicated with Uterine Fibroid."

Dr. F. A. Higgins: "My Experience with Antistreptococcus Serum in Puerperal Sepsis."

W. H. GRANT, M.D., *Secretary*, 419 Boylston Street.

RECENT DEATHS.

LUCIUS J. W. LEE, M.D., of Brooklyn, N. Y., a grandnephew of the late Prof. S. D. Gross, of Philadelphia, died of pneumonia on January 7th, in his sixty-fifth year. He was born in Easton, Pa., and was graduated from the Medical Department of the University of Pennsylvania. During the Civil War Dr. Lee served on the medical staff of Douglas Hospital, in Washington, D. C.

THOMAS BROWN WHEELER, M.D., of Montreal, died suddenly at the Murray Hill Hotel, New York, on January 10th, of apoplexy. He was seventy years old.

BOOKS AND PAMPHLETS RECEIVED.

The Harvard University Catalogue, 1900-01. Cambridge, 1901.

Railway Surgery in America. By Clark Bell, Esq., LL.D. Reprint. 1900.

Anginen durch den Friedländer'schen Bacillus. Von Dr. Emil Mayer. Reprint. 1900.

Abdominal vs. Vaginal Hysterectomy. By Henry O. Walker, M.D., Detroit, [illegible] Reprint. 1900.

Contributions of Irving C. Rosse, M.D., Washington, D. C., 1871-1900. One hundred and five titles.

Neglected Clinical Opportunities in American Medical Centres. By S. A. Knopf, M.D., New York. Reprint.

Mothers' and Babies' Hospital and Dispensary, Annual Report from January 1, 1899, to October 1, 1900.

Forty-fifth Annual Report of the Trustees of the Northampton Insane Hospital for the Year ending September 30, 1900.

Hernia, Undescended Testicle, Appendicitis and Gangrene of Bowel; Operation and Recovery. By C. W. Lillie, M.D. Reprint. 1900.

Panama and the Sierras; A Doctor's Wander Days. By G. Frank Lydston, M.D. Illustrated. Chicago: The Riverton Press. 1900.

The Thirty-first Annual Report of the State Board of Health of Massachusetts. Boston: Wright & Potter Printing Co., State Printers. 1900.

Abstract of the Proceedings of the National Convention of 1900 for Revising the United States Pharmacopeia, held at Washington, May 2, 3 and 4, 1900.

The Necessity of Expert Supervision of Medical Items Printed in the Daily Newspapers. By Walter L. Pyle, A.M., M.D., Philadelphia. Reprint. 1900.

Indications for the Drainage in Diseases of the Biliary Passages and the Technic of Operation. By J. E. Summers, Jr., M.D., Omaha, Neb. Reprint. 1900.

The Remote Results of Conservative Operations on the Ovaries and Tubes; An Analysis of Eighty-five Cases. By W. L. Burrage, M.D., Boston. Reprint. 1900.

Estimation of the Amount of Injury to the Earning Capacity of the Individual from Partial or Complete Loss of Vision. By Howard F. Hansell, A.M., M.D., Philadelphia, Pa. Reprint. 1900.

A Contribution to the Study of the Insect Fauna of Human Excrement, with Especial Reference to the Spread of Typhoid Fever by Flies. By L. O. Howard, Ph.D. Washington, D. C. 1900.

Thirty-second Annual Report of the Secretary of State of the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1898. Justus S. Stearns, Secretary of State. Edited by Cressy L. Wilbur, M.D. Lansing, Mich.: By Authority. 1900.

The Physician as a Scientist. A Compact Operating Case for Military Service, with a Description of Several New Instruments for the Same. Restitution of the Continuity of the Tibia by Transplantation of the Patella into an Extensive Osteomyelitic Defect. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprints. 1900.

Original Articles.

A SHORT ABSTRACT OF THE EARLY HISTORY OF MEDICINE IN MASSACHUSETTS TO THE YEAR 1800.[1]

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

I am indebted for my facts to the "History of Medicine in America," by James Thatcher, M.D.; the first volume of the Massachusetts Medical Society publication; "History of Early Medicine," by Josiah Bartlett, M.D.; and the second volume of the *Massachusetts Medical Society Transactions*.

The landing of the first emigrants at Plymouth, Mass., was December 22, 1620. More than a century and a half elapsed after the first settlement of the colonies before a single effort was made either by public authority or by the enterprise of individuals for the establishment of institutions for the education of physicians, or the regulation of the practice of medicine.[2] Our ancestors were strongly impressed with the importance of general education, and it was their constant solicitude to provide for institutions of learning as far as was practicable. But the welfare of the church and their political economy were made paramount to all other considerations. The peculiar motives which prompted their emigration to this country, the difficult circumstances they were called upon to encounter, and the depressed state of medical science in the countries whence they came, will furnish the most ample apology for their neglect of the means of improved medical education. Our colleges turned out graduates who repaired to Europe to complete their medical education in the public medical schools, and to qualify themselves to practise in the colonies.[3]

No medical libraries existed anywhere in the country, and it was seldom that students could have access even to the elementary works necessary to their instruction. No medical journal was published in America till near the close of the eighteenth century through which physicians could communicate the results of their experience or make known their improvements and discoveries; not even a newspaper was printed till the year 1704.[4] Hence it is not strange that we are so little acquainted with the character and practice of our predecessors.

The first physician of whom we have any account among the colonists was Dr. Samuel Fuller. He formed one of the company who came over in the first ship, and was a deacon in Rev. John Robinson's church. Whether he had enjoyed a collegiate education is uncertain, but he is said to have been well qualified in his profession; he was zealous in the cause of religion, and eminently useful as a physician and surgeon. He extended his benevolent labors not only to the sick among his intimate friends at Plymouth and the aborigines in the vicinity, but in 1628 and 1629, by the request of Governor Endicott, he twice visited the new settlement at Salem, where he manifested his skill and success in practice among the numerous sufferers from scurvy and other diseases introduced there by the ships on their arrival. He received the entire approbation of Govenor Endicott, and his letters of thanks for his useful services. In a letter to Governor Bradford, June 28, 1630, Dr. Fuller says: "I have been to Matapan (now Dorchester) and let some 20 of these people blood." What disease prevailed among them to require the loss of blood in the warm season of June we are unable to determine. In the year 1632 the settlers at Plymouth were visited by a disease which they called an infectious fever, of which upwards of 20 men, women and children died, among them being their pious and excellent physician, Dr. Fuller. The same disease proved very fatal also among the native Indians.

In the year 1633 Dr. Giles Firmer was a deacon in the Boston church and was esteemed as an able physician and a man of learning. In 1637 Dr. John Fisk arrived and settled in Salem, where he sustained a respectable character as a clergyman and physician. William Gager accompanied Governor Winthrop to Boston in the position of surgeon, where he died greatly lamented. At the first commencement at Harvard College, in 1642, Samuel Bellingham and Henry Saltonstall were graduated, and were afterwards honored with the degree of M.D. at European universities, and both were reputed learned and skilful physicians. Leonard Hoar was graduated at Harvard College, and repaired to England, where he studied medicine and received the degree of M.D. He returned to New England, and was for about two years president of Harvard College. Other M.D.'s were John Glover, 1650, Harvard College, who got his degree from Aberdeen and returned; Isaac Chauncey, 1651, from Harvard College, who came back from Europe with his M.D.; John Rogers, M.D., president of Harvard College, 1682–1684: it is uncertain if he practised; Charles Chauncey, president of Harvard College, 1652,—medical education in England,—who had six sons, all educated at Harvard, who all studied medicine and became eminent in their profession; several removed to England and did not return. Matthew Fuller in 1640 practised in Plymouth, removed to Barnstable in 1652, and died in 1678. He was appointed surgeon-general of the Provincial forces raised in Plymouth County in 1673, and was captain in 1675. Thomas Oliver, an elder in the Boston church, is mentioned with high approbation in Winthrop's journal as an experienced and skilful surgeon about 1644.

In 1646 the virtuous people in Boston were much grieved by the discovery of a disease in Boston with which, till then, they were entirely unacquainted, and which the venerated Winthrop in his journal says, "raised a scandal upon the town and country, though without just cause." This proved to be lues venerea. It originated with the wife of a seafaring man, who after childbirth was affected with ulcerated breast. Many persons were employed to draw this woman's breast, by which means about 16 persons, men, women and children were affected with this new and odious disease. The nature of the complaint was at length ascertained; but no physician could be found in the country who was acquainted with the method of cure; but it fortunately happened that at that very season a young surgeon arrived from the West Indies

[1] Read before the Malden Society for Medical Improvement, December 18, 1900.

[2] Bequest to Harvard College of Dr. Ezekiel Hersey, 1770.

[3] Harvard College was founded at Cambridge in 1638; William and Mary College of Virginia in 1691; Yale College in Connecticut in 1700; Princeton College in New Jersey in 1746; Philadelphia College in 1754; King's, now Columbia, in New York in 1754.

[4] The first newspaper printed in America was the Boston News-Letter, April 24, 1704, by B. Green; the first in Pennsylvania, December 22, 1719; the first in New York, October 16, 1725; the first in Charleston, S. C., 1730; in Rhode Island, October, 1732; in Connecticut, 1755; in New Hampshire, 1756.

who had been experienced in the disease, and he soon performed a cure. In the summer of 1647 an epidemic spread through the country among English, French, Dutch and Indians. It resembled a cold, attended with slight fever (probably influenza). Winthrop says, "Those who were bled or used cooling things died, those who took comfortable things for the most part recovered in a few days. Not a single family, and but a few persons escaped an attack of this epidemic; about 40 or 50 died in Massachusetts, and about the same number in Connecticut."

Thomas Thatcher came over to New England in 1635, educated for the ministry, also received a medical education, and was regarded as an eminent divine and learned physician. He gained great eminence in both professions, and was also prominent in the learned languages. He published a work entitled "A Brief Guide in the Smallpox and Measles," in 1677, which is the first medical publication found on record in New England, if not in America. As an illustration of the state of medicine in France in 1686, nearly seventy years after the settlement of Massachusetts, Felix, a surgeon, and Fagon, a consulting physician, were rewarded with $40,000 for a successful operation for fistula in ano on Louis XIV of France, in consequence of which a national thanksgiving was religiously observed.

At this time also the royal touch was considered as the only cure in scrofula. In May, 1682, notice was given in a London gazette that as the weather was growing warm, His Majesty would not touch any more for the king's evil till after Michaelmas; and in 1687 an indigent citizen of New Hampshire, having tried every other means without effect, petitioned the legislature for aid to transport him to England for that efficacious remedy.

In 1721 inoculation for smallpox was first regularly adopted in England by Mr. Maitland in April, on the young daughter of Lady Mary Wortley Montague, who had lived in Constantinople, and had become acquainted with the method of inoculation practised by some Turkish women, and satisfied of its safety and salutary effects, had it done on her young son in the East in 1717. The above was the first time it was done in England. Dr. Cotton Mather, the learned divine of Boston, about the same time, having read in the *Philosophical Transactions*, printed in London, an account of inoculation for smallpox by Timoni and Pylarini in Turkey, communicated the information to several physicians of Boston, who treated the subject with contempt. He then recommended to his friend, Dr. Zabdiel Boylston, to adopt the practice. Accordingly with the little information which he could obtain from that publication, and in the face of the most violent opposition, on the 27th day of June, 1721, Dr. Boylston inoculated first his only son, about thirteen years of age, and 2 negro servants, in which he was entirely successful. This confirmed in his own mind the safety of the proceeding, and in 1721 and the first part of 1722, Dr. Boylston inoculated 247 persons, and 39 were inoculated by others in Boston and vicinity; of this number only 6 died, and several of these were supposed to have taken the infection before inoculation. In the same time 5,799 took the disease in the natural way, of whom 844 died, and many who recovered were left with broken constitutions and disfigured countenances. The degree of odium and persecution which Dr. Boylston brought upon himself by this very laudable innovation is almost incredible. His house was attacked and he himself assaulted in the streets, loaded with all kinds of abuse and execrated as a murderer. A bill was brought before the legislature to prohibit the practice of inoculation under severe penalties, and it actually passed the House of Representatives; but some doubts existing in the council, its progress was arrested, and it never became a law. Dr. Boylston was repeatedly summoned before the selectmen of Boston and received their reprehension.

Not only did he suffer the greatest indignity from the populace but his professional brethren formed a powerful combination against him, though repeatedly invited to visit his patients and examine them to their satisfaction. The novelty of the subject and the strong prejudices existing caused much public agitation, and involved both clergymen and physicians in a spirited and intemperate controversy. The clergymen in general, however, acted an honorable part and many became zealous advocates of the new practice, while most of the medical fraternity were its active and violent opposers. The newspapers teemed with pieces on both sides of the controversy, and from the opponents of inoculation issued some of a virulent and scurrilous character. It is interesting to note that the *New England Courant*, printed by the Franklins (the young philosopher being one of the editors), was under the influence of the physicians, who abused the clergy for their interference in the controversy. He, however, persevered and finally enjoyed the results of his very useful labors. He finally was invited to London, and received all sorts of honors. While in London in 1726, on request of the Royal Society, he published an historical account of the smallpox inoculation as practised by him in Boston, dedicated to Princess Caroline. It was reprinted in Boston after his return, and a copy was deposited in the Harvard College Library by Ward Nicholas Boylston. The introduction of inoculation of smallpox may be regarded as an epoch in medicine, and to Dr. Zabdiel Boylston alone is due the credit of having firmly established it in this country.

In the year 1752 the country was again visited by an epidemic of smallpox, and by order of the magistrates an account was taken of all who were affected by the disease, either by the natural way or by inoculation in Boston, and rendered on oath. It appears that the number of inhabitants was 15,734. The whole number of smallpox patients the natural way was 5,544, of which 514 died. The number of inoculated was 2,113, of which 30 died. In 1764, according to Dr. Gale, 3,000 persons were inoculated and only 8 died, chiefly children under five years of age. Public hospitals for smallpox inoculation were opened in the vicinity of Boston in 1764, one at Point Shirley, by Dr. Wm. Barnet, and one at Castle William in Boston Harbor by Dr. Samuel Gelston, of Nantucket. In 1792 smallpox again visited Boston, and in three days the whole town was inoculated, so great was the fear of the disease. There were 9,152 inoculations, and 165 deaths occurred, chiefly in the families of the poor, many of whom were destitute of the comforts of life.

In 1735 and 1736 the disease called angina ulcusculosa (angina maligna) prevailed extensively throughout the country in its most malignant form, and in Massachusetts alone about 1,000 persons be-

came its victims. On this occasion calomel was for the first time administered as a remedy, and attended with the happiest results, arresting in a surprising way the fatal tendency of the disease. Dr. William Douglass published a valuable practical essay detailing the characteristics of the method of treatment of this alarming complaint.

Among the earliest publications on medical subjects in America was an essay on fevers published in Boston in 1732 by Dr. John Walton. Dr. John Cutler was long an eminent physician and surgeon in Boston. He was the preceptor of several of the early physicians; among them was Dr. Zabdiel Boylston. In 1781 old Continental paper money was used and physicians had great difficulty from the fluctuating value of it. The physicians of Boston instituted a club, the meetings of which were held in the Green Dragon Tavern. Physicians' fees were low, and when paid in depreciated paper money little or nothing could be realized from them. The fee for a visit was one shilling and sixpence, afterwards increased to two shillings. Midwifery and capital operations were at a guinea, with charges for after visits. The first fees established by the medical club were fifty cents for a visit; if in consultation, one dollar; rising and visit in the night, after 11 o'clock and before sunrise, double fee; obstetrical case, eight dollars; capital operation in surgery, five pounds; reducing a dislocation, or setting a fractured bone, one guinea; bleeding, opening an abscess, extracting a tooth, fifty cents, and the usual fee for visit was added. All accounts were to be calculated in hard money, and if paid in paper, according to such agreement as could be made with the parties. The profession was much benefited by these regulations.

The Massachusetts Medical Society was established in 1781, with power to elect officers, examine and license candidates for practice, hold real estate, and perpetuate its existence as a body coporate forever. This auspicious event was effected by an application to the legislature of thirty-one distinguished physicians from various parts of the State (their seal adopted in June, 1782, was a figure of Esculapius in his proper habit pointing to a wounded hart nipping the herb proper for his cure, motto, "*Natura duce*"), and is an interesting era in our history. The society was organized in June, 1782, and Edward A. Holyoke chosen president. The fellows were enjoined to communicate important cases, and the faculty at large invited to a familiar correspondence; circular letters were sent to similar societies in our own and in foreign countries, which were respectfully reciprocated. In 1785 corresponding and advising committees of the society were appointed for the different counties, in several of which associations were formed for meetings, reading dissertations, etc. In 1789 the society was authorized to point out and describe such a mode of medical instruction as might be deemed requisite for candidates, previous to examination. It was determined that every pupil should have a competent knowledge of Greek, Latin, the principles of geometry and experimental philosophy, and the period of instruction should be in no case less than three years, with attendance on the practice of a respectable physician. Publications were made triennially of authors to be studied, by which the most valuable modern productions were extensively circulated. The censors met for examination and licensing candidates once in four months. The first licentiate was admitted in 1782.

In 1790 the first number of medical papers containing a selection of important communications was published, but for want of funds a second did not appear till 1806. A third was printed in 1808, completing the first volume of the Massachussets Medical Society publications.

Dr. Ezekiel Hersey, of Hingham, who died in 1770, bequeathed £1,000, and his widow at her death a like sum, to be applied to the support of a professor of anatomy and surgery at the University at Cambridge. Dr. Abner Hersey, of Barnstable, who died in 1786, and Dr. John Cuming, of Concord, were also donors to the amount of £500 each for the same laudable purpose, and William Erving, Esq., of Boston, left £1,000 toward the support of an additional professor. In conformity with the views of the patrons and donors, professors of talents and character were in 1782 appointed, by whom lectures on the several branches were regularly delivered and students received the honors of the institution. In 1780 Dr. John Warren, while surgeon of a military hospital in Boston, commenced a course of anatomical lectures, and in the following year they were attended by the students of the university. Dr. Warren furnished a plan for a medical school, which was adopted by the corporation of Harvard College, and in 1783 he was appointed first professor of anatomy and surgery; Dr. Benj. Waterhouse, professor of the theory and practice of physic, and Dr. Aaron Dexter, professor of chemistry. This was the first essay made in New England for the establishment of an institution for medical education. George Holmes Hall and John Fleet were the first who were admitted in course to the degree of Doctor in Medicine at the university in the year 1788. In 1809 Drs. John Collins Warren and John Gorham were repectively inaugurated adjunct professors of anatomy and chemistry.

To go back a few years, the discovery of vaccination by Edward Jenner, a physician of Berkely, in Great Britain, was transmitted to this State in 1799. In July, 1800, Benj. Waterhouse, professor of the theory and practice of physic at the Medical School, procured vaccine matter from Bristol, England, and first vaccinated his son, the first person to be so treated in the United States.

One is at once impressed with two things in reading what precedes: (1) The prominent position which Massachusetts held in the advancement of medicine in the early days, and (2) the close relation between the physician and the clergyman, the two professions being often united in one individual, a most noted instance being Manassah Cutler, of Hamilton, Mass.

THE GREAT TOE (BABINSKI) PHENOMENON: A CONTRIBUTION TO THE STUDY OF THE NORMAL PLANTAR REFLEX BASED ON THE OBSERVATION OF ONE HUNDRED AND FIFTY-SIX HEALTHY INDIVIDUALS.

BY MORTON PRINCE, M.D., BOSTON,
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FOR the general reader who has not followed late neurological literature I will say that the Babinski phenomenon is a modification of the normal plantar

reflex. Stroking the sole of the foot normally causes a *flexion* movement, *if any*, of the toes, particularly of the four outer toes. Babinski pointed out that when the motor paths in the cord are diseased, as in hemiplegia and spastic paraplegia, stroking the sole, more particularly the outer surface, causes just the opposite movement, namely, "extension of the toes, particularly of the great toe."

This phenomenon promises to be of great value as a test of organic disease of the motor paths. Nevertheless there seems to be some difference in the understanding as to exactly what constitutes a Babinski phenomenon. This difference and various other factors which complicate the phenomenon are the probable cause of the different opinions held regarding the value of the test.

According to the *definition* of Babinski[1] extension of the outer toes may suffice for the phenomenon which is described as an "extension of the toes, particularly of the great toe." But he further states while flexion "predominates generally in the two or three outer toes, extension is *ordinarily*[2] more pronounced in the first or the first two toes." This language would imply that extension of the outer toes without that of the great toe, which may be sometimes observed, is of similar significance, or at any rate that sometimes extension is more pronounced in the outer toes. At least this interpretation is not uncommonly met with. Walton defines the phenomenon as an "extension of the great toe with or without extension and separation of the other toes." On the other hand, in the literature the phenomenon is almost always spoken of as the phenomenon of the *toes* (*phénomène des orteils*, *Zehen-Phänomen*), or extension of the toes, as if this movement of the smaller toes was of equal significance.

This difference is practically of importance, for according to Walton's definition, extension of the outer toes without including the great toe would not be a true "Babinski." While this may not be strictly true, I am satisfied that the phenomenon as defined by Walton is the form in which it is always, or almost always, of pathological significance and therefore of most clinical value, as will appear from the following observations.

From private conversation, I should also judge there was still considerable individual difference in the conception of the character of the extension movement constituting a Babinski phenomenon. Dr. Walton insists that the extension must be constant and deliberate, and marked; others consider any extension movement sufficient, even if not persistent (as with the knee jerk). Thus Babinski describes as a variation of the phenomenon one which consists of "sometimes flexion and sometimes extension, the first excitations causing flexion." Another variation is "extension from stroking the outer surface, flexion from the inner."

To acquaint myself more fully with the exact character of the normal plantar reflex, and more particularly to determine whether the Babinski phenomenon or any extension movement of the toes occurs in normal individuals, I have lately examined the reflex in 156 presumably healthy men between the ages of twenty-two and thirty-three years, all candidates for civil service examinations. For the purposes of the investigation only the reflex movements of the toes and ankle were noted. Those of the leg were disregarded.

As a result of these observations I have been able to satisfy myself that one cause of the discrepancies in the reported observations of different observers is that there may be two distinct plantar reflexes, one of which is probably cerebral and one is spinal. Both may be absent. The normal spinal reflex movement of the toes in the adult is always, as shown by Babinski and others, flexion; the normal cerebral reflex is generally, if not always, extension of the toes, with the same movement of the foot. If precautions are not taken the cerebral reflex may mask the spinal reflex, and give erroneous results, that is, override the spinal flexion and produce an extension.

The cerebral reflex can generally, not always, be inhibited by an act of will, and thus leave the spinal free. When this was done in these observations an extension of the great toe was never observed.

The 156 subjects were studied in two different groups. The method employed on the first group varied somewhat from that employed in the other and gave correspondingly different results of some interest. The first group (examined in May last) comprised 64 men. In 3 of these an extension of some or all of the four outer toes occurred, while the big toe remained motionless or was flexed. In 1 there was extension, though slight, of the big toe in each foot. The knee jerk was noted as plus, but no ankle clonus. In 1 other there was an extensor response, but the notes fail to state whether of the big toe or of the others. A dorsal flexion of the ankle was noted as frequent. Reference will be made to this again. In the remaining 57 cases, the response, if any, was flexion.

Noting the significance of the fact that in 4 of the 5 subjects in whom extension occurred the movement was only of the outer toes, it seemed probable that this extensor reaction was far too frequent to be a true spinal reflex, and was due to some other physiological arrangement. The subjects were more or less nervous and excitable, and I was satisfied that I did not take sufficient precautions to see that the muscles were thoroughly relaxed, and the subjects in mental repose.

Accordingly, the observations were repeated on 92 subjects, similarly candidates for civil service examination, and presumably with healthy nervous systems.

Special care was taken to see that the subject relaxed his muscles and he was warned to guard against all involuntary movement and subjective response to tickling sensations; at the same time care was taken not to excite to an uncomfortable degree the skin.

In not one was an extension movement of the great toe observed. In only one was a *distinct* and *marked* extension of the four outer toes noted. The great toe in this case was either immobile or showed occasional slight flexion. The knee jerk was normal and there was no ankle clonus, but the subject was designated in the notes as nervous. In another case *slight* extension occurred at times in the outer toes of one foot. Both great toes showed no reflex movement whatever.

The result in general was that whatever plantar reflex was obtained was very largely limited to the toes, and general signs of ticklishness were not obtrusive. A pointed stick was used for stimulation.

At first before the subjects learned to relax their

[1] Followed by Collier, Langdon and others.
[2] Italics not in original.

muscles, etc., in some cases there were extensor movements of toes, including the great toe and foot, which masked the true spinal reflex. As soon as the subject exercised mental control these movements tended to cease, and that of the great toe always ceased. In the other toes extension was only observed in the 2 cases mentioned. In the first series of 64 cases dorsal flexion (extension) of the foot was common. In a series of 72 cases in which precautions to exclude the cerebral reflex were taken this tibialis anticus contraction was noted as present only 6 times, and in 4 of these the subjects are specially noted as "ticklish" or "nervous" or both.

It seemed very evident that the extension movements (toes and foot) noted were proportioned to the ticklishness or nervousness of the individuals. These movements have been described as semi-voluntary (Walton). This is an unfortunate term and means nothing.

They seem to me to be properly a cerebral reflex, and similar to dodging the head or closing the eye before an expected blow. Such movements are not voluntary or semi-voluntary, but automatic, for volition sometimes cannot prevent them. That these particular toe movements are cerebral is further suggested by the fact that they occur in proportion to the degree of "ticklishness." That they are not "voluntary" is shown by the fact that they require a strong effort of will to inhibit them, and sometimes cannot be inhibited at all. (I have noted that in subjects mentally dull from disease and unable to inhibit but still ticklish, these movements are marked.)

But whether cerebral or spinal the point should be emphasized that in not a single case was extension of the great toe noted when properly examined.

It may be said, then, that when proper precautions are taken to inhibit the cerebral reflex, extension of the great toe never occurs, or, more correctly, it was not observed once in 92 individuals, and only once in the first group of 64, when it was *slight*, and in all probability a cerebral reflex, as it was in this group that insufficient precautions were taken.

Extension of some of the other toes occurs occasionally in health (2 out of 92 subjects and 3 out of 64). But in some of these cases at least, if not in all, it is a cerebral reflex. Nevertheless, it is not always practical to make this distinction clinically.

The significance, then, of the Babinski phenomenon, consists in the extension of the great toe. To emphasize this the best term would be the *great toe phenomenon* (like knee jerk, ankle *clonus*, etc.). But from this it does not follow that extension of the other toes may not be of pathological moment, for though it may be physiological (cerebral?), it may be due to disease of the motor tract as with the great toe. In a case, for example, of meningeal hemorrhage from a pistol shot wound, a very extreme extension of all the toes, as intense and prolonged as I have ever seen, was later, after removal of the clot, followed by extension of only the outer toes, and then stroking caused at first extension succeeded by flexion; this was evidently the remains of the Babinski. The significance of extension of the outer toes alone must therefore be a matter of consideration in each case. Slight extension of the outer toes without that of the big toe I have observed in obscure cerebral disease without being able to determine the significance of the phenomenon.

The recognition of a cerebral as well as spinal plantar reflex seems to the writer of practical moment. The one may obscure the other.

Looking at the two reflexes from a biological point of view, the theory is plausible that the cerebral reflex is one of retreat from a hurtful stimulus, a reflex which has grown out of a conscious volitional impulse. The spinal reflex is probably that of assistance, such as automatic grasping the limb of a tree or other object.

Absence of any toe reflex. — The number of cases in which no toe reflex was observed is noteworthy. Of 72 consecutive cases no reflex at all of the big toe could be obtained in 52. Of 92 cases, no reflex of any toe occurred on either side in 18 cases, on one or both sides in 27 (30%).

This is slightly higher than Walton's figures. My belief is that the frequency of the plantar (spinal) reflex, so far as it concerns the toes, has been exaggerated owing to several sources of fallacy being overlooked, namely: (1) Mistaking the cerebral for the spinal reflex; (2) in stroking the sole it is not difficult by moderate pressure over the first phalanges to cause a purely mechanical flexion of the toe; (3) if the stroke is made from the toe towards the heel pulling on the skin, when inelastic, will do the same.

A CASE OF OBLITERATION OF THE RIGHT URETER BY A CALCIFIED FIBROID; REMOVAL OF FIBROID AND IMPLANTATION OF THE URETER INTO THE BLADDER; RECOVERY.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE following case illustrates some of the dangers of leaving an old fibroid to itself. The patient, Mrs. E. M. W., age fifty-eight, had always been well up to ten years ago. She had had two children and no miscarriages. Menstruation had always been regular. The menopause was at the age of forty-five. Ten years ago she noticed in the right lower abdomen a tumor, which gradually increased in size. At intervals she suffered more or less pain from this tumor. Three years ago she began having frequent and painful micturition. During the past three years the pain in the lower abdomen has been much more frequent and more severe. At times she has been unable to hold her water. The urine has been increasing in cloudiness and the odor has become foul. There has been loss of weight and appetite. The bowels have been constipated.

On examination I found a large fluctuating tumor of the lower abdomen. The signs of fluid were so marked that I was of the opinion that the tumor was ovarian. The woman's general condition was fairly good. I advised operation, but felt somewhat doubtful as to the ease with which the tumor could be removed.

On exposure the tumor proved to be a fibroid of the uterus, upon which — or a part of which — was a large cyst. The tumor was either a fibrocyst of the uterus, or a uterine fibroid in close connection with a cyst of the broad ligament. The tumor was deeply and broadly attached and separation seemed impossible. The deeper portions in the right side of the pelvis were evidently calcified, being of stony hard-

[1] Read before the Obstetrical Society of Boston, November 20, 1900.

ness. Ten years ago I should have abandoned the operation, and wisely so. Indeed, before this operation was completed, all concerned in it would have been glad if it had never been undertaken. Inexperience in such an operation would, I am sure, have made it a fatal one.

Separation of the tumor became more and more difficult as the calcified portions were reached. The areas of the tumor deep in the right broad ligament were closely attached to the right and anterior portions of the pelvis. Separation was made with the fingers carefully pressing between the capsule of the tumor and contiguous structures. When the solid and calcareous masses were reached, enucleation became still more difficult. It was at this point in the operation that clear fluid was noticed escaping rapidly and in large amounts from the depths of the dissection.

The orifice from which this fluid was flowing was easily recognized, and its edges grasped. Dissecting backward I found it to be the right ureter, which apparently ended at the separated calcified masses. Bepond this point, which was perhaps an inch or more from the bladder, no distal orifice of the ureter could be found, though most careful search was made for it. Above the orifice the ureter was dilated and tortuous, and the pelvis of the corresponding kidney much dilated. I supposed that the injury to the ureter was caused by a transverse tear, the ureter being presumably situated at an angle with the plane of the separated surfaces. It seemed, however, perfectly evident, finally, that the ureter ended at the plane of cleavage, and that separation at that plane tore across the obstructed end. However that may be, the problem was not unlike that of a divided ureter, except that end-to-end suture was impossible, for no distal end could be found, as I have said. It was fortunate perhaps that end-to-end union was impossible, for such an operation deep in the pelvis is not likely to succeed. The proximal end for one inch or more was freed from the resisting tissues in which it was imbedded until it could be brought easily to the collapsed bladder. A small opening was then made into the bladder, into which about half an inch of the lax ureter was thrust. The bladder about the ureter was then carefully and accurately sutured to the side of the ureter, the end of which was of course projecting about half an inch into the bladder. The sutures were of fine silk applied interruptedly. Separation of the tumor at the left soon demonstrated that it made a part of the sigmoid flexure. Removal, therefore, left a gap in that viscus, which was closed by a few silk sutures.

The whole operation was extremely difficult. Had not the ureter and the bowel been involved, enucleation of the tumor itself would have seemed sufficiently formidable. With the added complications, recovery seemed too much to expect. Fortunately, the most unpromising cases often do the best, and this was one of them, for convalescence proved — to use a much overworked word — uneventful.

The plan which I have always followed in pelvic surgery has made operations of ureteral repair extremely infrequent in my experience. This plan, which has everything to commend it, is to make the dissection of the deep pelvis — like that of the deep neck — in the full light of day, where every structure can be recognized as the dissection proceeds. The cases in which this deliberate dissection cannot be made, or in which the structures are too changed for recognition, are extremely infrequent.

A CASE OF VESICAL IMPLANTATION OF THE URETER BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.[1]

BY EDWARD REYNOLDS, M.D., BOSTON.

MRS. L., forty-five years old, was sent to my office, August 21, 1900, by Dr. W. D. Madden with the following history. She had always been a well woman until the birth of her only child seven years ago. During the next year she suffered from some pain in one groin, which was diagnosed as due to ovaritis, for which she received somewhat prolonged local treatment without relief, and was finally advised to have an ovary removed by vaginal incision. She went accordingly to a hospital in this city, was etherized and operated upon, but some unforeseen difficulties turning up in the operation, a complete vaginal hysterectomy was done. The operation was followed by severe and increasing colicky pain in the left back, which terminated in the discharge of a large amount of urine on the removal of the vaginal stitches, since when there always has been a constant leaking of urine from the vagina. The following year the same surgeon operated either three or four times (the patient is not sure which), for the closure of a vesicovaginal fistula, but always with the result of having one small pinhole leakage persist in the middle of the union. A year ago she saw another surgeon, who told her that the fistula was ureterovaginal, and that an operation was too dangerous to be thought of. During the past year she has suffered unintermittently from eczema, extending from the vaginal vault down the inside of the thighs almost to the knees, and at the time she came to my office, the thighs were swollen, excoriated and bleeding.

Under the use of frequently changed vaginal tampons to absorb the urine and simple drying powders to the thigh, the eczema improved with extreme rapidity, and on August 25th she entered my wards at the Boston City Hospital, with the external skin in very fair condition, and the vagina, though still irritated and secreting a slightly purulent secretion, nevertheless much improved and fairly normal looking. The vagina was short and senile, with exceedingly thin vaginal walls and vault. The left side of the vault was a mass of tough cicatricial tissue from the repeated operations, in the centre of which could be seen an orifice, of a calibre of not more than 4 or 5 French, from which urine leaked intermittently as from a ureter, except when the patient bore down, when it appeared in quantity as though from the bladder. The vagina was dressed with oleate of zinc and iodoform gauze, and on the 27th I thought that it was in sufficiently normal condition to warrant an exploration of the fistula. The probe soon showed that in addition to a channel which passed upwards and backwards and was undoubtedly the ureter, there was another which turned forwards towards the bladder, though I could make nothing pass it. A catheter was inserted into the ureter for about one inch, and a

[1] Read before the Obstetrical Society of Boston, November 20, 1900.

specimen of urine collected, which proved to be of smoky color, containing numerous normal blood cells, probably due to trauma from the probe, a few abnormal blood cells and leucocytes, with about the amount of albumin which would be explained by the presence of the fresh blood. Nothing else abnormal was found.

On August 28th the patient was etherized, and after failing to pass a catheter into the bladder from the vagina, I exposed the bladder with a Kelly cystoscope, and easily passed a fine catheter from the ureteral orifice in the bladder back into the vagina. Another was passed into the ureter through the fistula, after a slight dilatation of the cicatricial opening in the vaginal vault, the two thus entering through the same opening. After an incision through the mucous membrane of the vagina completely surrounding these catheters, I was able to follow the ureter both ways under the guidance of the catheters. The distal end was traced into the bladder wall, after dissecting it for about one quarter inch. The proximal end was separated from the dense cicatricial tissue in which it lay, for about one-half inch with the greatest difficulty, and at continual risk of opening into the peritoneum (which on account of the probably infected character of the urine and vaginal secretion, I was of course very anxious to avoid), and having gained enough to be able to bring the ureter into contact with the bladder wall without tension, I thought it unwise to increase the risk by further dissection. The catheter was then withdrawn, the vesical end of the ureter was dilated by passing a No. 20 French bougie through it, the island of mucous membrane was cut off, thereby separating the two ends of the ureter, the vesical end of the ureter was dilated to No. 15 French by a bougie, a provisional stitch was passed through the renal end, drawn into the bladder through the dilated ureteral orifice and out through the urethra. Tension on this easily drew the renal end of the ureter into the bladder, inverting the vesical end of the ureter, and thus resulting in the approximation of a considerable extent of raw surface. The ureter was now fastened to the bladder wall by two sutures of fine catgut and every effort was made to take off tension by firm and exteusive coaptation of the surrounding tissues with many catgut sutures. No catheter was inserted, the patient being left to pass water voluntarily. A vaginal douche of weak corrosive solution was given daily; the patient was kept on salol and urotropin, with free use of cream of tartar water.

The patient had a slight run of pyrexia after the operation, varying from a little above 99° in the morning to nearly 101° at night. The urine became dark and cloudy, and on the 31st, four days after operation, it was distinctly smoky, and the sediment contained many leucocytes and abnormal blood cells, and hyaline and granular casts with fat and leucocytes adherent. The next day there was a considerable amount of pus and urates macroscopically and a small leak from the vagina.

On November 2d, the sixth day, the urine was slightly decomposed, containing amorphous urates, but the temperature was barely above normal. The vaginal wound had separated. Three weeks later the urine was still high colored, with a few red blood corpuscles and leucocytes, and a little calcic oxalate, but no casts. The vesical end of the ureter had become obliterated so that there was no regurgitation from the bladder, but the renal end was still discharging as before into the vaginal vault.

On October 29th I again made an incision into the vaginal vault and readily freed the ureter to the point which I had reached before, but again feared to pursue it further into the cicatricial tissues amid which it lay. I then freed the bladder from the tissues behind it for some little distance above the vaginal cut, made a small incision through the vesical wall, passed a pair of ordinary though rather fine-pointed artery forceps through the urethra into the bladder, and then separating them slightly, passed one blade out through the cut in the posterior vesical wall. The free end of the ureter was then threaded upon the projecting blade of the forceps, the forceps closed and the handles tied. The closing of the forceps carried the ureter very high up upon the bladder wall, and left a very deep vaginal wound, which was sutured together with many layers of running buried sutures. The operation was followed by three days of pyrexia, similar to that which followed the first operation, at the end of which time the urine contained pus, triple phosphates and casts in abundance. It was passed voluntarily and easily from the start.

On November 11th, thirteen days after the operation, the urine contained a few casts, a little pus, and of course a trace of albumin, but was otherwise essentially normal. The wound was firmly healed. Light traction was made upon the clamp every day in the hope of bringing it away, but without success, until on November 18th, the twentieth day after the operation, it was opened and immediately came away without effort. On November 20th, two days after the removal of the clamp, I made a careful endoscopic examination of the bladder, which was kindly repeated for me by Dr. C. M. Green; to my astonishment we found the ureteral insertion represented by a minute orifice surrounded by a spot of reddened mucous membrane about the size of a split pea. The rest of the bladder was entirely normal, and except for the high situation it would have been difficult to distinguish the new ureteral orifice from a normal one. A few days later the patient was discharged well.

When, about a year ago, this operation was described to this society, by Dr. E. C. Dudley, of Chicago, I must own that it appeared to me a very effective, but perhaps crude procedure. The chief objection to it then seemed to me to be that the grasp of the forceps must necessarily cause sloughing, and thus leave at the point where the ureter entered the bladder a wide gaping slit instead of the normally small orifice. My cystoscopic examination of my own case has convinced me that although the blades of my forceps were apparently tightly closed, there must have been enough nutrition in the portion of the bladder wall between the jaws to enable it to live, thus avoiding a slough, but securing an absolutely firm union of the ureter with the bladder.

The chief risk of failure in ureterovesical implantation is always from the slipping away of the ureter, owing to the thinness of its walls and the consequent difficulty in its secure suture to the bladder. This danger is entirely obviated by the Dudley method of securing the ureter and bladder together by forceps. The presence of the forceps must at the same time direct the stream of urine into the bladder, and in this case, at least, its presence in the bladder caused

no discomfort. (This could, I think, hardly be the rule.) The high position given to the ureter and the tension upon it, due to the closing of the forceps, also produced a very deep and therefore extensive surface for union between the bladder and vaginal wall. In this case the ureter and kidney had evidently been infected during their long drainage into the vagina, and it is probable that the loss of union after the first operation was due to infection of the wound by the decomposed urine which succeeded each operation; under these circumstances the case was probably peculiarly well adapted to show the advantages of Dudley's forceps operation.

PREGNANCY FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES.[1]

BY M. A. MORRIS, M.D., BOSTON.

THE reader wishes to thank the society for the privilege which permits him to present to its members the story of a rather unusual case of pregnancy, following removal of both ovaries and tubes. The medical journals of the past twenty years or so have furnished reports of a small number of similar cases, some of which may be referred to, as they have taught the necessity and the advantage of conservatism in dealing with surgical diseases of the ovaries and tubes, and have stimulated closer observation and study of these organs.

Mrs. J. A. G., came under my care about May 1, 1898, on account of dysmenorrhea. One of her sisters had died of pulmonary tuberculosis, otherwise her family history was unimportant. She first menstruated at the age of fourteen years, and regularly thereafter, with slight pain, the flow continuing a week. She had been married five years, and had a healthy boy four years old. She had never been well since the birth of her child, had been attended in labor by an ignorant woman, and remained in bed only seven days after that event. During the next three weeks she was in bed most of the time on account of weakness, pains in both iliac and hypogastric regions, of a bearing down and dragging character, and an intermittent, bad-smelling, brown vaginal discharge. For two years previous to my visit she had dysmenorrhea, the pain being most severe in the region of the right ovary, beginning with, and lasting through, the menstrual period. During the previous seven months sexual intercourse had been productive of pain, as she said, "in the back passage"; the menstrual flow had been regular, profuse, painful, and continued seven days; she had lost flesh. At my visit her countenance was indicative of fairly good health, her pulse was 76 and temperature 99⅘, heart and lungs were negative. An examination of the urine, made later, was negative.

Vaginal examination revealed slight laceration of the cervix, and a small amount of discharge from its glands. The uterus was anteverted and fixed, so that it was immovable laterally, but movable, to a limited degree, anteroposteriorly. The body was moderately tender. On the right of the uterus was, apparently, a cystic ovary, and a thickened tender tube; on the left, there was a thickened tender tube, but the ovary was not felt. There were no bladder symptoms. Hot vaginal douches were ordered, and three weeks later, under ether, the uterus was dilated and curetted, with the hope of improving her condition before opening the abdomen. The operation was followed by marked relief of her symptoms for about two months. On July 18th she entered the Carney Hospital for the abdominal operation.

The patient was etherized by Dr. E. E. Everett; Dr. R. H. Morris was present. With the assistance of the late Dr. David P. Ronayne the abdomen was opened, and numerous adhesions found between the ovaries, tubes, and surrounding parts. A very long appendix was adherent, by its tip, and released. The right ovary contained a cyst as large as a hen's egg, and the left ovary a hematoma nearly as large as the cyst. The ovaries and tubes were tied off with silk quite close to the uterus and removed; the abdominal wound was closed with silkworm gut; the patient made a rapid recovery.

She began to menstruate soon after the operation, and continued to do so regularly and painlessly for about four months. The dyspareunia disappeared and her sexual appetite became normal. In May, 1899, she consulted me on account of morning sickness, nausea, cardialgia, and also abdominal enlargement, and was anxious to know whether she had a tumor. An examination showed clearly that she was pregnant. On September 12, 1899, she was delivered, after a natural labor, of a healthy girl, by Dr. Richard H. Morris, of Everett, Mass. About two or three weeks after confinement her baby died, and soon after that she menstruated, and has continued to do so regularly and normally since.

Among the cases previously published is one by Dr. George J. Englemann, formerly of St. Louis, now of Boston.[2] In this case pregnancy followed a double ovariotomy in which the right tube was left intact. A microscopic examination made of the specimen later showed that some ovarian tissue had been left.

Englemann also refers to a case of Professor Schatz, of Rostock,[3] who operated on February 20, 1880, and removed a large cystic tumor of the left ovary, including the outer third of the Fallopian tube, and all the ovarian tissue that could be found. The right ovary was diseased. "It was tied by means of three silk ligatures passed between it and the broad ligament, and was cut away in such a manner that a piece of ovarian tissue, at the most 2 millimetres broad, was left on the proximal side of the ligature; the right tube remained intact." This patient was delivered of a child May 12, 1885. The specimen had been preserved, and the cut surface of the right ovary "was found to contain ovarian tissue with Graafian follicles."

Dr. S. C. Gordon, Portland, Me., reports[4] 2 cases of pregnancy following removal of both ovaries and tubes. His first case seems to be a doubtful one, as there is not positive evidence that the ovaries and tubes were removed. Dr. J. R. Chadwick, who operated, had mislaid his notes, and could not say whether both ovaries were removed or not. The patient and her husband understood that they were.

Dr. R. Stansbury Sutton, of Pittsburg, Pa., re-

[1] Read before the Obstetrical Society of Boston, November 20, 1900.

[2] Reprint from the Transactions of the Southern Surgical and Gynecological Association, September, 1889.

[3] Centrbl. f. Gyn., and Obstetric Gazette.

[4] From Transactions of the American Gynecological Society, vol. xxi, p. 105, 1896.

ports a case of "double ovariotomy followed by pregnancy and delivery at term."[5]

Robertson[6] mentioned a case where he removed both ovaries, which were diseased, and the woman afterwards conceived and bore a child.

C. F. Harding[7] reports a pregnancy after ovariotomy.

Dr. A. Palmer Dudley[8] refers to a case of hysterectomy done by a German surgeon, who, leaving the ovaries and tubes, brought the latter down into the vagina, and the patient recovered. She became impregnated in the tubes, and carried the ovum six weeks. She then consulted him and he curetted the ovum from the tube dependent from the vault of the vagina, and on microscopical examination recognized the chorionic membrane and a portion of the fetus.

Kossman[9] reports a case of pregnancy and normal delivery, one and a half years ago, after removal of both ovaries. On November 12, 1895, he extirpated both ovaries in a woman who suffered from oöphoritis. The tubes were not removed. Vaginofixation completed the operation. About one and a half years later the husband reported his wife pregnant, which was verified at a subsequent examination. December 2d Kossman was summoned to the patient, but on arrival (two and a half hours after the beginning of labor) found her delivered of a living child. It must be surmised that particles of ovarian tissue were left behind which remained active. At the time of this report the patient is again pregnant.

In my own case it is to be regretted that the parts removed had not been subjected to a microscopic examination. It is remarkable that the woman, after the removal of both ovaries and both tubes and tying with silk, should become pregnant, and the only explanations that can be offered are those which have been used in other cases, which have appeared in literature. There may have been a third ovary, or a scrap of ovarian tissue must have been left behind.

Regarding supernumerary ovaries a few quotations will suffice. Garrigues,[10] quoting Biegel, says, "Supernumerary ovaries have been found 23 times in 500 bodies. In a case reported by Winckel there were three ovaries and three ovarian ligaments.[11] Regarding the passage of the ovum into the uterus, a ligature may have dropped off, leaving the stump of the tube open, or there may have been another ostium between the ligature and the uterus. In a case of mine, operated on seven years ago, there was a Fallopian tube with two ostia, each surrounded by fimbriæ. The condition escaped my notice at the time, and was afterwards pointed out to me by Dr. R. H. Fitz.

A STATE EPILEPTIC COLONY FOR ILLINOIS. — According to the *New York Medical Journal*, a colony for epileptics is to be opened, and Northcliff, near Elsah, Jersey County, has been conditionally accepted by the State Board of Charities as its future situation. Governor Tanner is reported to have stated on December 5th that there were more than 5,000 epileptics inmates of the various eleemosynary institutions of the State.

[5] Transactions of the American Gynecological Society, vol. xxi, p. 105, 1896.
[6] British Medical Journal, September 27, 1890, p. 772.
[7] Lancet, 1890, vol. i, p. 193.
[8] Transactions of the American Gynecological Society, vol. xxi, p. 115, 1896.
[9] American Journal of Obstetrics and Diseases of Women and Children, June, 1900.
[10] Diseases of Women, 1900 edition.
[11] Path. der weiblichen Sexualorgane, S. 28, Table 24, Fig. 7.

Medical Progress.

PROGRESS IN LARYNGOLOGY.

BY ALGERNON COOLIDGE, JR., M.D., BOSTON.

THE SPONTANEOUS ESCAPE OF CEREBROSPINAL FLUID FROM THE NOSE.

UNDER the heading of "nasal hydrorrhea," cases have from time to time been reported, varying so much in symptoms that a subdivision has been demanded. In some of these cases the watery flow is evidently a nasal secretion, in others examination has shown it to be of the same composition as cerebrospinal fluid, and an idiopathic escape of this fluid has been suspected.

St. Clair Thomson[1] has collected the published reports of 21 cases, of which 9 had undoubtedly an escape of cerebrospinal fluid, the others probably. To these he has added a case of his own, and taken the opportunity to go deeply into the subject. The escape of the fluid from the nose as a consequence of injury, although not frequently reported, has been established as a recognized possibility. Its spontaneous escape has not been commonly recognized. Our textbooks up to the present either do not mention it or group it indefinitely under the head of "nasal hydrorrhea." As a result of his study of these cases, Thomson concludes that the subarachnoid fluid can escape through the nose without trauma or new growth to explain how it effects an exit. The flow in most cases commences gradually, generally in middle life; it occurs in drops, and is continuous by day and night. It generally comes from one nostril only, but may come from both. It is clear and limpid, free from odor and only slightly salt. It may amount to about half a litre in twenty-four hours. The fluid is sterile, and answers all chemical tests of cerebrospinal fluid. There is in most cases a history of more or less headache, and occasionally other symptoms of disturbance of the nervous system. The common anatomical cause of this leakage has not yet been definitely determined. A simple solution of continuity in the base of the skull arising in some unknown manner may be the only explanation at present. Active treatment of these cases is more likely to do harm than good. It is, of course, very important that nothing should be done which might infect the nasal cavity, and any attempts to suddenly check the flow are to be avoided.

NASAL HYDRORRHEA.

Taking from this heading such cases as are due to an escape of cerebrospinal fluid, we have left such as exhibit a flow of watery fluid from the nose arising from the nasal mucous membrane. These cases of course run into others which are commonly classed as vasomotor rhinitis. Lermoyez[2] in an exhaustive paper reviewed by Waggett,[3] argues that spasmodic hydrorrhea is merely an accident of neuro-arthritism. Local lesions in the nose are not constant in these cases, while they may be purely secondary phenomena. Hyperesthetic spots often result from constant irritation, in the same way that polypoid hypertrophies are secondary lesions, and disappear on the ces-

[1] The Cerebro-Spinal Fluid, etc., by St. Clair Thomson, M.D., etc. London and New York: Cassell & Co., 1899.
[2] Ann. des mal. de l'or, July, 1899.
[3] Journal of Laryngology, Rhinology and Otology, August, 1900.

sation of the hydrorrhea. The fluid is a true secretion and not a mere exosmosis, and is due to abnormal excitation of the secretory filaments of the superior maxillary nerve. The hyperemia and obstructive phenomena are the results of a true vasodilator activity. As a result of this explanation of its etiology it follows that he is opposed to local treatment. Although the galvanocautery and electrolysis will produce a temporary result by inhibiting secretion and vasodilatation, the literature of the subject shows that local treatment has produced few lasting cures, while cases are not infrequent in which over-zealous operating has done positive harm.

The arthritism itself cannot be cured; the author attacks the hypersecretion with atropine and the vasodilatation with strychnine. One dose of each is given daily for ten days at breakfast, two doses daily at meal times for the next ten days and occasionally three doses for a third ten days. Generally he gives a twenty-day course, and after a fortnight's rest repeats if necessary. He reports 15 cases treated by endonasal methods, with 2 cures, and 27 cases treated with atropine and strychnine, with a large proportion of cures.

THE INFLAMMATORY ORIGIN OF POLYPI.

In spite of many able monographs on the subject it it must be acknowledged that the etiology of nasal polypi has not yet been definitely determined. All arguments on this subject begin by quoting the theory of Woakes, that these growths are always due to a necrosing ethmoiditis, and by showing that this theory is wrong. The tendency, however, has been more and more to consider polypi always secondary to some previous inflammatory disturbance in the region of the ethmoid.

In "some critical and desultory remarks," Wright [4] argues that although bone disease or sinus disease is not infrequently the proximate cause of nasal polypi, yet neither of these conditions, nor both together, are sufficient to explain the proximate cause of every case of polypi. He is convinced that there is a class of cases, frequently associated with asthma and hay fever, in which a pure vasomotor neurosis is the important factor in the etiology. All these various factors may be at once present in varying degrees of importance. A vasomotor neurosis of the nasal blood vessels may exist without necessarily an accompanying asthma or hay fever, and thus become a factor in the etiology of nasal polypi.

THE NEGATIVE AIR DOUCHE FOR DIAGNOSIS OF DISEASE OF THE ACCESSORY SINUSES.

Seifert [5] and Réthi [6] have each described a method to aid in the diagnosis of disease of the accessory sinuses of the nose, especially empyema. Briefly, this method consists in applying a collapsed Politzer air bag to the nostril so as to make a negative air pressure in the nasal cavity, thereby drawing out enough secretion from the affected sinus to make its presence visible on inspection. Polypi must first be removed and all secretion wiped out. The nozzle of the air bag is then applied to the suspected side, both nostrils closed, and while the patient swallows to draw up the soft palate, the bag is allowed to suddenly expand. This may be repeated a few times, or iodide of potash may be given internally to make the secretion more fluid and larger in amount. This is often sufficient to prove the presence and locate the source of pus, taking the place of exploratory punctures or the removal of part of the middle turbinate, as is frequently done. This procedure may be useful, not only from a diagnostic, but also from a therapeutic standpoint if systematically used. Not only may headache and other discomforts of retention be relieved, but occasionally the secretion be permanently removed.

[4] Laryngoscope, July, 1900.
[5] Phys.-med. Gesell. zu Würzburg, April 29, 1899.
[6] Wien. klin. Rundschau, October 22, 1899.

THE ADENOID FACE.

Since attention was first called to the importance of hypertrophy of the pharyngeal tonsil, and its removal became one of the most common of operations, both our textbooks and innumerable papers on the subject have didactically asserted that neglected adenoids or the consequent mouth breathing results in a faulty growth of the bones of the face. We have come to look upon the high arch, the crowded teeth, the narrow and high nasal cavities and the pinched or "rodent" facial expression, as *prima facie* evidence of past or present adenoid vegetations. During the past few years a few able papers have appeared, some of them founded on extensive clinical and anatomical investigation, which argue that we have been "putting the cart before the horse"; that narrow respiratory passages are no more likely to be filled with adenoids than the larger ones, but simply that when so filled the symptoms are more pronounced and the patient more likely to be brought for examination. We have already referred to Siebenmann's article.[7] Previously E. Fraenkel,[8] from careful measurements, and recently Grossheintz,[9] from a study of skulls, came to the same conclusions.

Wright [10] believes that while adenoids as the cause of narrow jaws has been a subject on which very erroneous views have been held, it is possible that the narrow jaw may have some etiological influence upon the occurrence of lymphoid hypertrophy in the pharyngeal vault.

OZENA.

This is a subject which has attracted an increasing amount of attention during recent years and still we are confronted with an increasing number of theories on its etiology and methods for its treatment. Grünwald's [11] conclusions point to a focal suppuration as the common or only cause. That the cause is to be sought in previous hypertrophy or purulent rhinitis or by the invasion of one or several forms of bacteria we have heard periodically for some years. The relation between ozena and the shape of the nasal cavities usually associated with it has received renewed attention by Meisser [12] and Gerber.[13] In brief, their conclusions are that ozena is the result of a lack of proper development of the nasal fossæ associated with retrograde metamorphosis of the mucous membrane.

Cozzotino,[14] in a long article, finds that ozena develops only in cases with nutritive deficiency. The first pathological change takes place in the periosteum and medullary space of the bone. Later the erectile tissue atrophies and then the glands. The epithelium is the last structure to become atrophic, showing that the disease is not secondary to catarrhal processes.

[7] Boston Medical and Surgical Journal, February 2, 1899.
[8] Inaug. Diss., Basel, 1896.
[9] Arch. f. Laryn., Bd. viii, H. 3.
[10] Laryngoscope, May, 1900.
[11] Nasal Suppuration, Translation. Wm. Wood & Co., 1900.
[12] Arch. f. Larvn., Bd. viii, H. 3.
[13] Ibid, Bd. x, H. 1.
[14] Ann. del mal de l'or, July, 1899.

For the treatment of ozena the antitoxin injection of Belfanti and Della Vedova has not received wide endorsement. McBride[15] strongly advocates cupric electrolysis. Cleansing with alkaline solutions is taken for granted in all methods of treatment. Oil, tampons and vibratory massage are in common use, but by no means universally recommended. Of the local medicaments Knight[16] gives preference to menthol, formaldehyde, 1–5,000, ichthyol in a 2% to 5% solution, and gomenol, 2–5 parts in 1,000, all used in an atomizer.

BACTERIA IN THE HEALTHY NOSE.

Our knowledge of the bacteria of the healthy nose is summed up by Thomson.[17]

Considering the large quantity of dust and germ carrying air which passes into the nasal fossæ they are remarkably free from micro-organisms. Certain authors have always been able to find some organisms in the healthy nose, though always in small numbers; others have found none in the majority of cases. The difference is probably due to difference in technique. All have found that the vestibules swarm with organisms. Previous observers have demonstrated the action of the ciliated epithelium in sweeping out intruding matters, and the effect of the trickling of mucus in cleansing the mucous surfaces. Some claim decided bactericidal power for nasal mucus. The author, among others, has not been able to do more than prove that the mucus has an inhibitory effect on the development of micro-organisms, while some, again, simply believe that mucus is not a favorable medium for their development. The author reviews a recent monograph by Viollet,[18] who claims to have discovered that freedom of the nose from bacteria is due to leucocytosis and phagocytosis. To prove this he found it necessary to introduce carmine or microbes into the living nose, as the nasal mucus once removed did not show this phagocytic action. By introducing these substances into the nose he observed their absorption by the leucocytes of the nasal mucus. Among other bacteria he mentions the pneumococcus, the pneumobacillus and the bacillus of diphtheria. Thomson believes that there can be little doubt that phagocytosis plays its part in the nose as in other parts of the body, and shares in the work of removal.

ANOSMIA.

Onodi contributes a paper on this subject to the Thirteenth International Medical Congress.[19] Our knowledge of anosmia is extremely meagre, largely on account of the difficulty of combining anatomical and pathological study of cases. After a detailed description of the olfactory centres in the brain the author divides the clinical forms into essential or true anosmias, which may be either peripheral or central according to the part of the olfactory region affected, mechanical or respiratory anosmia and functional anosmia. Peripheral true anosmia may arise in connection with inflammation of the nasal mucous membrane as a result of influenza. This may be temporary or may result in atrophy of the nerve of smell. Syphilitic processes, chronic ethmoiditis, ozena or senile atrophy may produce the same results, though the latter is generally central in origin. Central true anosmia may be caused by cerebral tumors and other diseases of different parts of the brain, trauma, intoxication with tobacco, cocaine, mercury and other poisons, also by overstimulation and exhaustion of the sense of smell, also by the toxic influences of influenza and septic poisoning, and congenital defects of the olfactory centre. Tobacco and cocaine have also a peripheral action. Mechanical anosmia is caused by anything that interferes with nasal respiration. Functional anosmia is commonly due to hysteria, but various reflexes may produce it, as after ovariotomy, during menstruation, and after cauterization of inferior turbinates.

SUPRARENAL EXTRACT.

For two years the aqueous extract of the suprarenal gland has been widely used as a local vasoconstrictor especially for operative work in the nose. Its local effects are thus summarized by Swain:[20] It is a powerful local vasoconstrictor and contractor of erectile tissue. It can be used in considerable amounts without either local or general dangerous effects. It can be used any number of times without evil effect or danger of forming a habit. Its use seems to heighten the effect of any other drug used locally, notably cocaine. It is especially useful in acute congestion, but is also very helpful in certain chronic conditions of the hay fever type. Newcomb[21] describes its effects when injected into the veins of animals. There are produced extreme contraction of the arteries of peripheral origin, a remarkable and rapid rise in the blood pressure in spite of powerful cardiac inhibition, central vagus stimulation, and great acceleration and augmentation of contraction of the auricles and ventricles, especially the former, after section of the vagi. Respiration is only slightly affected, becoming more shallow. A more recent paper by Hopkins[22] after the extract had been in common use for some months, brought out an interesting discussion. The writer and most of those who took part in the discussion had become convinced that the use of the extract at the time of operation was followed by a tendency to secondary hemorrhage. Some operators packed the nose after operating, diminishing the danger from bleeding. For tonsils and adenoids this secondary bleeding is more serious, as it is much more difficult to control. As a styptic in bleeding from other causes this extract was found of good service. Its use in acute coryza is uncertain. In some cases an intense, painful rhinitis has followed the use both of the dry extract and of the aqueous solution inhaled or sprayed into the nose.

THE FRENUM OF THE UPPER LIP.

B. Fraenkel[23] in the case of three children brought to him with the question of adenoid vegetations because they held their mouths habitually open found that this was caused by a short frenum of the upper lip. There was no other anatomical peculiarity about the mouth, nor obstruction to breathing. After section of this frenum there was no difficulty in keeping the mouth closed. This point might easily be overlooked. The section of the contracted frenum offers even less difficulty than cutting the frenum of the

[15] Diseases of the Nose, Throat and Ears, 1900.
[16] Laryngoscope, May, 1900.
[17] Journal of Laryngology, August, 1900.
[18] Paris: Libraire J. B. Baillière et Fils, 1900.
[19] Journal of Laryngology, Rhinology and Otology, November, 1900.
[20] New York Medical Journal, December 24, 1898.
[21] Laryngoscope, January, 1899.
[22] New York Academy of Medicine, Section on Laryngology, February 28, 1900.
[23] Arch. f. Laryn., Bd. ix, H. 3.

tongue, as there are no blood vessels of any size in the neighborhood.

THE PREVENTION OF RECURRENCE OF PERITONSILLAR ABSCESS.

Botey [24] argues that peritonsillar abscess arises from sepsis spreading from a tonsillar crypt to the supratonsillar fossa and that to prevent recurrence the latter must be left freely and widely open. This can only be accomplished by complete removal of the upper half of the tonsil. The fossa, which is more than a centimetre in depth, often has its orifice closed by adhesions. The tonsil is frequently adherent to the pillars, the plica, the margo semilunaris and to the walls of the fossa. When not too adherent the tonsil may be cocainized and the upper portion pulled forward and removed with a knife or snare sufficiently to free the fossa. When the adhesions are extensive and the tonsil small it is often difficult and tedious or impossible to do this. In such cases the author makes two incisions between the tonsil and the anterior and posterior pillars extending well up into the soft palate, and after drawing the tonsil out, another incision joining the two above the tonsil, which is then removed with scissors.

THE CADAVERIC POSITION OF THE VOCAL CORDS.

A certain position of the vocal cords, called the cadaveric position, has for long been commonly supposed to be the position in which the cords are found in the cadaver. Fein,[25] in a paper of forty pages, describes his exhaustive investigations on the position of the vocal cords in the cadaver. He finds that the vocal cords immediately after death are in the median line, or very near it. The result of rigor mortis is to draw the cords away from the middle line, so that the glottis broadens. The width of the glottis in the undisturbed body is different from what it is after the larynx has been taken out, and becomes so as soon as it is taken out. After removal of the larynx the cords are found in a position half way between extreme abduction and adduction. After rigor mortis has passed the cords remain between abduction and adduction, but tend to return towards the median line. There is no typical form of the cadaveric glottis; it is as variable as it is during life. After complete cessation of rigor mortis the thickness of the cords appears to increase. At the moment of death all forces in the body suddenly cease, and the arytenoids sink backwards, which tends to approximate the cords. At the onset of rigor mortis the abductor muscles stiffen first and the glottis begins to open.

THE MECHANISM OF COUGHING.

The question of the mechanism of the sudden opening of the glottis in connection with coughing has been studied by Valentin.[26] The larynx of a dog was examined through the mouth, and it was seen that in coughing the mechanism was similar to that in man. The glottis was closed and after the tension of the air in the lungs had been raised by compression of the thoracic walls, the cords were suddenly widely abducted. The trachea was then divided just below the larynx, in such a way that the glottis could be seen from below. Coughing was then induced by tickling different points both in the trachea and bronchi and in the larynx. In each case the cough began by an expulsion of air from the lower section. After this expulsion of air had begun, sometimes half a second or a second later, there was seen a sudden violent symmetrical abduction of the vocal cords, which lasted only a moment and was followed by a short adduction and the normal position of the cords. This proves that the abduction is caused not by any air pressure from below, but by a reflex contraction of the postici independent of the tension of the air and arising at an interval after the contraction of the chest wall. The whole act of coughing is aroused as a reflex by irritation of one of many parts of the respiratory tract. Repeated irritation of any one spot finally fails to produce this reflex.

[24] Thirteenth International Medical Congress, 1900.
[25] Fraenkel's Archiv., Bd. xi, H. 1.
[26] Loc. cit., Bd. ix, H. 3.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of November 20, 1900, the president, DR. ALFRED WORCESTER, in the chair.

DR. M. A. MORRIS, by invitation, reported

PREGNANCY FOLLOWING THE REMOVAL OF BOTH OVARIES.[1]

DR. F. H. DAVENPORT: While I have never had a case quite similar to the one Dr. Morris has reported, I would like to refer to one in which I removed by the abdomen the uterus and both ovaries and tubes, yet she menstruated for seven months.

DR. W. F. WHITNEY: There is only one really authenticated case in which an accessory ovary had a distinct ligament of its own. Probably all the others were cases in which parts of the ovary were cut off by adhesions or other causes. The fact that more or less ovarian tissue is often left behind in amputations of the ovary is emphasized by the many cases brought to me in which the ovary shows a cut surface. The striking fact in Dr. Morris's case is that she got pregnant after the tube was tied off. In a case like this it is more plausible to assume that the ligature slipped and that some fragments of ovary were left behind than to think that there was a complete third ovary and tube.

Dr. Whitney then showed a specimen of tube with accessory ostium.

DR. E. REYNOLDS: I do not think it necessary to assume that the ligature slipped. Tubes are very apt to grow patent, and this explains many cases of peritonitis recurring after operations for tubal disease. I now always excise the tube at the uterine cornu, and since doing this I am certain that I have seen less recurrent trouble.

DR. F. A. HIGGINS: I am reminded of a case in which I left both ovaries, but removed both tubes, tying off with catgut. She became pregnant after a time. I suppose when the catgut was absorbed the tube became patent again.

DR. EDWARD REYNOLDS reported a case of

VESICAL IMPLANTATION OF THE URETER BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.[2]

[1] See page 86 of the Journal.
[2] See page 84 of the Journal.

DR. M. H. RICHARDSON reported

A CASE OF OBLITERATION OF THE RIGHT URETER BY A CALCIFIED FIBROID; REMOVAL OF FIBROID AND IMPLANTATION OF THE URETER INTO THE BLADDER; RECOVERY.[8]

DR. REYNOLDS: This case brings out the fact which I perhaps did not insist upon sufficiently in my paper, that the most favorable elements for success in the implantation of a ureter are that you can get plenty of end to the ureter and also that you can make the end of the ureter reach the bladder without too much tension. In such a case as Dr. Richardson's I probably would prefer the end-to-end anastomosis, but where the conditions I have referred to cannot be reached I would prefer the Dudley operation.

DR. G. H. WASHBURN showed the specimen from a case of

EXTRA-UTERINE PREGNANCY.

The woman, age thirty-three, had always been regular till two months ago, when she went ten days over time. Since then she has had a somewhat irregular flow with two attacks of severe pain, but no faintness. When seen ten days ago there was a mass behind the uterus which Dr. Washburn diagnosed as an extra-uterine pregnancy of nine weeks' growth. Two days ago there was another attack of pain. Operation this morning showed a large tube in the cul-de-sac still unruptured and tied down by fresh adhesions. A report on this enlarged tube will be made at the next meeting.

REGISTRATION OF MIDWIVES.

DR. J. G. BLAKE spoke of the deplorable amount of puerperal sepsis among the poorer Italians of this city, all of which could be traced to the midwives whom the Italians prefer to employ. Many of these women are ignorant and filthy to a degree, and the suggestion was made that steps be taken looking towards the registration and proper instruction of them.

On motion of DR. REYNOLDS a committee of three was appointed to investigate the matter and report at a later date.

DR. WORCESTER reported briefly a case of

RAPIDLY PROGRESSIVE CARDIAC DISEASE COMPLICATING PREGNANCY.

THE AMERICAN PHYSIOLOGICAL SOCIETY.

THIRTEENTH ANNUAL MEETING, HELD IN THE PHYSIOLOGICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD., DECEMBER 27 AND 28, 1900.

FIRST DAY.

AFTER the transaction of general business, papers were read, abstracts of which follow.

OBSERVATIONS ON THE BLOOD PRESSURE DURING THE PERIOD OF NORMAL SLEEP.

This paper was read by DR. W. H. HOWELL, for DRS. BRUSH and FAYERWEATHER. Many difficulties have to be overcome in the arrangement of apparatus suitable for recording blood pressure during sleep, the ordinary types of plethysmograph and sphygmograph being inadequate for this purpose. The apparatus used in these experiments was a combination of these two instruments which could be applied to the radial artery, and with which three very perfect records, covering the entire period of normal sleep, were obtained.

These records show that the time when blood pressure is lowest is coincident with the time when sleep is deepest, namely, about one and a half hours after going to sleep. From that time until the time of waking there is a gradual rise in blood pressure, indicating a gradual vasoconstriction. These results confirm the observations made by Professor Howell with the plethysmograph more than three years ago.

Among the minor points of the records is to be noted a marked difference in blood pressure corresponding to the sitting posture and that corresponding to the lying posture, this difference being shown when the subject lay down at night and when he arose in the morning. The explanation of this phenomenon rests, in great part at least, on hydrostatic grounds.

There is only a comparatively slight fall of pressure (4 millimetres of mercury) during the short space of time when sleep actually supervenes. This is explained by the fact that towards night there is a gradual loss of tone in the blood vessels, and that physiologically the subject is already partially asleep.

These observations are in harmony with the vasomotor theory of sleep, and indicate that the phenomena of sleep and waking are accompanied by gradual rather than sudden changes of vasomotor tone.

THE EFFECT OF CO_2 AND O_2 ON SMOOTH MUSCLE.

DR. A. M. CLEGHORN read this paper by title.

DR. S. J. MELTZER read a paper

ON THE MOVEMENTS OF THE ESOPHAGUS AND THE CARDIA AND ON SOME OF THE COMPLEXITIES OF THE CENTRE OF DEGLUTITION.

Dr. Meltzer has by a new series of experiments again proved the theory of Mosso, Kronecker and Meltzer, that the main act of deglutition is the result of a series of reflex acts, only one centripetal impulse being necessary to bring about all movements. In a second series, he shows that for the esophagus and cardia there are local reflexes, and that this section has its own afferent and efferent impulses. The general reflexes differ from the local in that anesthesia easily paralyzes the centres for the contraction of the esophagus, while contraction of the cardia is as resistent to paralysis as is the first act of deglutition.

The local reflexes, on the other hand, he proved to be more resistant to anesthesia and debilitating factors even in the first act of deglutition as well as later. They are also complicated by inhibiting impulses. The local reflexes can be brought out by injection of salt solution or even air in amounts of not less than 1 cubic centimetre. The downward direction of peristalsis remains the same even when the air or salt solution is introduced from the cardia upwards.

A STUDY OF THE SEASONAL VARIATIONS OF GROWTH IN WEIGHT OF CHILDREN.

This paper by DRS. G. W. FITZ and F. W. HUTCHINGS was read by title.

[8] See page 83 of the Journal.

SOME NEW OBSERVATIONS ON BLOOD PLATES AND LEUCOCYTES.

DR. G. T. KEMP and MISS HENRIETTA CALHOUN presented this paper.

In the enumeration of blood plates some difficulty is encountered from the fact that when the ordinary dilating fluids, such as physiological salt solution or Hayem's fluid, are used, the plates come together, forming almost unrecognizable masses. This disadvantage may be overcome by the use of a fluid devised by these observers, consisting of a 2.5% solution of formaldehyde tinged with methyl green. With the aid of this fluid and as the result of a large number of observations, a fairly constant ratio has been found to exist between the blood plates and the red corpuscles, namely 1–5.8. This observation agrees with Hayem's theory that the blood plates are young red corpuscles. It is also found that the blood plates do not contain hemoglobin.

The influence of the leucocytes on blood coagulation was also studied. By preparing slides at freezing temperature and allowing them to warm gradually while under observation, it is found that during coagulation there is no progressive change or breaking down of the leucocytes. This is in direct opposition to the assertions of Lilienfeld that the leucocytes are broken down in coagulation to furnish the so-called thrombin, and that the nodes from which the fibrin filaments radiate are merely broken down leucocytes. On the contrary, Dr. Kemp finds that the fibrin threads radiate from masses of disintegrated blood plates, which, unless appropriately stained, appear so nearly like broken down leucocytes as to account for the error which he claims Lilienfeld to have made. In his opinion, therefore, the blood plates rather than the leucocytes are the responsible factors in blood coagulation.

ON THE RATE OF FATIGUE OF NERVE CENTRES.

DR. R. S. WOODWORTH (by invitation) read this paper.

The observation that many of the motor functions may be repeated consecutively for from 2,000 to 10,000 times without loss of accuracy has led Dr. Woodworth to a study of the rate of fatigue of nerve centres, with the idea that this rate is at present overestimated.

By measuring the voluntary contractions of the finger with Mosso's ergograph, he finds that when he allows a complete relaxation to take place after each contraction, the rate of fatigue is very much slower than has hitherto been observed; the relaxation apparently doing away with fatigue as efficiently as a long rest. He concludes that the comparatively rapid rate of fatigue, which up to this time has been considered to be the true one, is due to the fact that there was no complete relaxation, and consequently the factor of muscle fatigue has been introduced.

Exactly similar results have been obtained when the frog's gastrocnemius muscle is stimulated reflexly or by excitation of the proper portion of the spinal cord. Experiments on some of the simpler mental functions, such as the memorization of columns of figures, have led to the same conclusions.

These results possess the negative value of showing that the curves previously published can be applied only to muscular fatigue, and that deductions therefrom with regard to the rate of fatigue of nerve centres are unreliable.

DR. E. T. REICHERT showed a

STUDENT'S LABORATORY TABLE.

After emphasizing the desirability of increased facilities for students' work in the physiological laboratory, Professor Reichert presented plans and photographs of a student's table which embodied the following improvements:

An upright glass case built into the table provides a place for all the apparatus needed by the student throughout the course. By this means the wear and tear incident to the carrying of delicate apparatus back and forth many times from the storage room is avoided. Two countershafts for the transmission of the power are provided for each table, one at each end, thus enabling two drums to be revolved at different rates of speed.

A RHEOCHORD.

DR. E. T. REICHERT showed this instrument, which is in reality a monochord, consisting essentially of a cylindrical rubber core, the surface of which is cut into a deep continuous spiral groove. The resistance wire is wound about the core in this groove. An endless screw underneath the core and geared to it by series of cogs bears the brass contact point which plays in the groove against the wire. By simple rotation of the core on its axis, the distance from the end of the resistance wire to the contact point is diminished or increased. This modification thus provides a means of producing a gradual and uniform variation in the amount of resistance introduced into a circuit.

A RHEONOME.

This was also shown by DR. E. T. REICHERT, and presents this advantage: the metal bar which is ordinarily used to transmit the current, and along which the movable binding post slides, is here replaced by a hard-rubber trough filled with acidulated water. By this device the extent of possible variations in the strength of the electric current may be very greatly increased.

A RHEOCHORD.

DR. G. P. CLARK presented this instrument. It was designed by Professor Clark and consists of a metre stick joined to a circular wooden base. The resistance wire extends along the side of the metre stick and may be connected by appropriate plugs with any one or all of a number of resistance coils concealed in the base. The "slider" may be easily moved along the metre stick. This apparatus possesses the advantages of being easily and cheaply made, and of furnishing resistance which can be quickly varied and accurately measured.

A HAIR CAST OF A LIVING HUMAN STOMACH.

DR. G. P. CLARK read this paper for DR. NATHAN JACOBSON. This cast, exhibited by Professor Clark, was taken from the stomach of a girl ten or twelve years of age. The habit of chewing the ends of her braids gave rise to this deposit, which completely filled the stomach and which LOW shows its exact contour. The cardiac end is much softer than the py-

loric and shows evidence of the relative strength and activity of the muscles of those portions of the stomach walls.

(To be continued.)

Recent Literature.

The Thirty-Second Annual Report of the Secretary of State on the Registration of Births, Deaths, Marriages and Divorces in Michigan for the year 1898. Edited by CRESSY L. WILBUR, M.D., Chief of Division of Vital Statistics. Lansing, Mich. 1900.

This report for the year 1898 marks a new era in the history of registration in Michigan, and is virtually the first in a new series of more reliable vital statistics for that State, since it is the result of new legislation enacted in 1897, whereby the registration returns of the State have been very greatly improved, and are now much more complete than those of any previous year.

Under the new law a certificate of death is required, and must be presented to the local registrar in every case of death before burial is permitted. Under the old law, the statistics of deaths were collected once a year, at the time of taking the annual assessment, and it was estimated that only 60% of the deaths were thus obtained.

The birth registration appears to be still quite defective, the compiler stating that "probably not over two-thirds of the births that actually occur in the State each year finally get upon the records."

The Bertillon classification of the causes of death is fully presented in an appendix, and has also been adopted in a modified form as the basis of classification in the report. This system has received the sanction of the American Public Health Association, as well as of very many foreign sanitary authorities, and is now quite generally adopted by most of the States in which registration returns are collected.

In addition to the publication of the annual report the compiler has issued during the past two years a monthly bulletin of the vital statistics of Michigan, which has not only proved helpful to the registrars in that State, but has been a public educator upon the general subject of vital statistics.

Much credit is due to Dr. C. L. Wilbur, who may very properly be styled the registrar-general of Michigan, since his duties are quite similar to the English official bearing that title. Dr. Wilbur has accomplished very much toward bringing the State of Michigan into line, as one of the foremost registration States of the Union.

A Clinical Treatise on Fractures. By WILLIAM BARTON HOPKINS, M.D., Surgeon to the Pennsylvania Hospital and to the Orthopedic Hospital and Infirmary for Nervous Diseases. Philadelphia: J. B. Lippincott Co. 1900.

This octavo of 264 pages on a heavy calendered paper is "a report of the unpublished clinical lectures delivered by the author at the Pennsylvania Hospital." The author has purposely omitted many of the details of treatment which would ordinarily be given in clinical lectures and has omitted historical matter which, as he states, "is inseparable from a work of reference," but "is not essential in a treatise intended for practical use." The author describes clearly, in each instance, a simple and effective method of treatment, which, in many instances, is not the commonly accepted method, yet it is a record of his clinical experience and as such is of value. The illustrations and skiagrams are excellent and the book is a safe guide to the treatment of fractures.

The chapter on compound fractures is judicious, and, we are glad to say, goes into the detail of the treatment in an admirable manner. The section on bone joining, in which the author selects the word joining "on account of its technical significance in the arts as applied to wood or metal," is of a good deal of interest. Various illustrations are used to show a scarf joint formed experimentally by the author.

There is not in the book the information given as to prognosis that would seem desirable and which would naturally be looked for in a clinical treatise on fractures. The prognosis of injuries of this description is not any too well known and in a future edition of this work we trust the author will give some attention to this important part of the consideration of fractures.

Atlas and Epitome of Diseases Caused by Accidents. By DR. ED. GOLEBIEWSKI, of Berlin. Authorized Translation from the German, with Editorial Notes and Additions by PEARCE BAILEY, M.D., Consulting Neurologist to St. Luke's Hospital and the Orthopedic Hospital, New York, and to St. John's Hospital, Yonkers; Assistant in Neurology, Columbia University; Author of "Accidents and Injury; Their Relation to Diseases of the Nervous System." Forty colored plates, and 143 illustrations in black. Philadelphia: W. B. Saunders & Co. 1900.

This authorized translation from the German by Dr. Pearce Bailey of Dr. Golebiewski's work is of a good deal of interest. The German State Insurance Bureau has published a table of accidents for statistical purposes for the use of all the trades unions, and what is of especial interest is that the amount of indemnity is graded in accordance with the disability. In cases of total disability the full amount is paid; when the disability is partial, only a part of the amount. From this, suggestive and interesting statistics have been made up.

The book is divided into two parts, one treating of injuries in general, the other of injuries affecting special structures and regions of the body. It is profusely illustrated with colored plates, most of which are drawn from life. The text, the author states, is based on an experience with accident cases extending over thirteen years, embracing a total of 5,245 cases, many of which have remained under observation since the first few years following the passage of the Accident-Insurance Law.

It is a book that every one who has to do with the legal side of accident cases should possess.

Suggestions to Medical Writers. By GEORGE M. GOULD, A.M., M.D. Philadelphia: The Philadelphia Medical Publishing Co. 1900.

Dr. Gould has republished in book form the various bits of suggestion and advice to writers which have become familiar to readers of the *Philadelphia Medical Journal.* Much of the advice is good, some of it is unnecessary and some of it, we confess, seems to us bad. We have, for example, little sympathy with the

attempted reformed spelling, which Dr. Gould has striven to introduce. It appears to us, also, a labor lost to attempt to influence style by writing about it, nor can we reconcile in a chapter devoted to the improvement of style such phrases as the following: "Strabismic construction" and "sentences that suffer from spastic paraplegia." To those who have their own ideas of writing English, much of the advice is superfluous, and to those who have not we fear that a perusal of this book would simply make a bad matter worse. The erudition of the author is, however, abundantly manifested on almost every page, and as an epitome of useful information we can commend the book much more conscientiously than as a safe guide for the inexperienced medical writer. A valuable chapter on the History and Psychology of Words is appended.

The Pathology and Surgical Treatment of Tumors. By N. SENN, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College, in affiliation with the University of Chicago; Professor of Surgery, Chicago Polyclinic; Attending Surgeon to Presbyterian Hospital; Surgeon in Chief, St. Joseph's Hospital, Chicago. Second edition, revised. Illustrated by 478 engravings and 12 full-page plates in colors. Philadelphia: W. B. Saunders & Co. 1900.

"The text of the first edition of this book has been carefully revised and many additions have been made. A new section has been added on Sarcoma of the Decidua. Many of the old illustrations have been eliminated, and are replaced by others intended to explain more satisfactorily the subjects they represent. Most of the new illustrations are original."

The book is unquestionably the best work on tumors and is extremely useful to the surgeon as a book of reference. It is arranged systematically, the material is presented in an attractive way and it is filled with practical details. Operations are described in full detail and the status of a given subject is judiciously presented. The work is but another proof of Dr. Senn's extraordinary industry and is one of his best pieces of work.

A Manual of Surgical Treatment. By W. WATSON CHEYNE, M.B. F.R.C.S, F.R.S., Professor of Surgery in King's College Hospital and the Children's Hospital, Paddington Green, etc., and F. F. BURGHARD, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College Hospital and the Children's Hospital, Paddington Green, etc. In seven volumes. Vol. IV, The Treatment of the Surgical Affections of the Joints (including Excisions) and the Spine. Philadelphia and New York: Lea Brothers & Co. 1901.

Volume IV of this work is in many respects more satisfactory than its predecessors. The authors disarm criticism when they say they "would desire once more to reiterate the fact that the object we originally set before ourselves was to describe as fully as possible only those methods of treatment which have proved most efficient in our hands. To this plan we have adhered; and therein also will be found our justification for the omission of certain newly introduced methods of treatment which may prove of great value, but which are as yet too recent to enable a definite verdict to be pronounced upon them."

The volume deals with the treatment of surgical affections of the joints, including excisions and the spine. It certainly presents the detail of many of the generally accepted methods of treatment, but is still in many respects antiquated.

The chapters on the treatment of the nervous affections of the joints and on rheumatoid arthritis are admirable. The chapter on scoliosis is fairly good, but does not represent modern treatment. The appendix upon medical gymnastics is taken from Dr. Percy Lewis's book on "The Relief and Cure of Spinal Curvature."

The scope of this "Manual of Surgical Treatment" appeals to us so strongly that perhaps we expect more from it than we have any right to. Certainly the views of the authors are presented and the value of methods of treatment clearly set forth. This is what they undertook to do and they certainly are accomplishing their purpose.

Diseases of the Gall Bladder and Bile Ducts, Including Gall Stones. By A. W. MAYO ROBSON, F.R.C.S., Senior Surgeon to the General Infirmary at Leeds; Emeritus Professor of Surgery in the Yorkshire College of the Victoria University; Member of Council and Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons of England. Assisted by FARQUHAR MACRAE, M.B., C.M. (Glas.). Second edition. New York: William Wood & Co. 1900.

This is the second edition of Dr. Robson's Hunterian Lectures. He has recast the whole book and has changed it from the lecture to the narrative form. He has added two new chapters on Membranous Cholecystitis and Gall Stones. An index and a table of contents with some new illustrations complete the work. The book now constitutes an excellent guide to gall bladder and bile duct surgery.

The book is divided into the following chapters: Anatomical Considerations, Inflammatory Affections, Intestinal Obstruction, Tumors of the Gall Bladder and Bile Ducts and Gall Stones, or Cholelithiasis. The nomenclature of affections of the gall bladder and bile ducts is in great confusion and there is need of a new classification of the subject. We trust that in a future edition of this most excellent work Dr. Robson will undertake this labor. The work bristles with practical points and if an intelligent classification of the affections of the gall bladder and bile ducts could be made, it would add greatly to the value of the book. There is an extensive list of case histories which are of value in illustrating various important points.

Appendicitis and its Surgical Treatment. With a Report of 185 Operated Cases. By HERMAN MYNTER, M.D. (Copenhagen), Professor of Clinical Surgery in University of Buffalo, Buffalo, N. Y. Third revised edition. Philadelphia and London: J. B. Lippincott Co. 1900.

This is an octavo volume of 220 pages, and is the third edition of this work. The author, desiring to obtain the degree of Doctor of Medicine from his Alma Mater, the University of Copenhagen, twenty-six years after graduation, submitted this monograph to the University, and it was accepted in July, 1897. All through the work one sees evidences of a "labor of love" and the thoroughness with which the author has gone into the subject is worthy of high commendation. While all would not agree with the writer in the de-

ductions which he draws from the facts that are at his disposal, yet one cannot but believe that the book is a most excellent contribution to our knowledge of this very important subject. It is a book that any one desiring a complete knowledge of the subject would turn to in research work on appendicitis.

Therapeutics: Its Principles and Practice. By HORATIO C. WOOD, M.D., LL.D. (Lafayette, Yale), Professor of Materia Medica and Therapeutics and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania; Member of the National Academy of Science. Eleventh edition, remodelled and in greater part rewritten. By HORATIO C. WOOD, M.D., and HORATIO C. WOOD, JR., M.D., Demonstrator of Pharmacodynamics in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott Co. 1900.

The eleventh edition of this work marks the completion of a quarter of a century since it first made its appearance. This fact alone is a sufficient guarantee of its excellence. But what most attracts our notice is the energy displayed by the authors in the revision which the text has undergone. It truly has been "rewritten." The reader will here find described all the important newer remedies; at the same time he will be gratified that the book has not been increased in bulk, for unessentials have been omitted.

A Guide to the Instruments and Appliances Required in Various Operations. By A. W. MAYO ROBSON, F.R.C.S., Senior Surgeon to the Leeds General Infirmary; Hon. Consulting Surgeon to the Keighley and Batley Hospitals; Emeritus Professor of Surgery in the Yorkshire College of the Victoria University; Member of Council and Hunterian Professor R. C. S. of England. Second edition. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

This is the second edition of this little handbook, which was designed by the author for his house surgeons and dressers at the hospital. It gives excellent lists of instruments to be laid out for a given operation, although some of the names of instruments are not familiar to an American. To a student it should be valuable in that it reviews for him the instruments that would be necessary to prepare for a given piece of operative work.

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by DRS. EDWARD MARTIN, G. E. DE SCHWEINITZ and BARTON C. HIRST. New (eighth) edition. In one octavo volume of 796 pages, with 37 engravings and 3 colored plates. Philadelphia and New York: Lea Brothers and Co.

The first edition of this book was good, but the last edition is an improvement on all the others. It is chiefly notable because it has been brought so thoroughly up to date. The volume is not perfect; defects which should be remedied in another edition could still be pointed out, but it is so much better than many other works of a similar character that it deserves our commendation.

The Thompson Yates Laboratories Report. Edited by RUBERT BOYCE and C. S. SHERRINGTON, with illustrations and plates. Volume I, Reprints 1898–1899. Volume II, Reprints and Reports 1898–1899. Liverpool: University Press. 1900.

These two elaborate volumes, of 237 and 264 pages respectively, and with numerous beautifully executed plates, are the first instalments of the published work of the Thompson Yates Laboratories. The first volume contains an account of the opening of the laboratories in 1898 by Lord Lister, accompanied by Professor Virchow, and also an elaborate series of papers by Sherrington and others on various matters connected with the nervous system. The second volume gives in detail several researches of much practical interest and importance, among which may be mentioned an investigation on "oysters and disease" and another on malaria. The presswork and illustrations leave nothing to be desired; we shall await succeeding issues of the reports with interest and confidence that they will sustain the very high standard set by these first publications.

Uric Acid as a Factor in the Causation of Disease. A Contribution to the Pathology of High Blood Pressure, etc. By ALEXANDER HAIG, M.A., M.D. (Oxon.), F.R.C.P. Fifth edition, with 75 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

Few medical books are more familiar than this. The theories and facts set forth have excited attention, leading to a fifth edition of the work, expanded to the length of 846 pages. The author is more confident than ever of the correctness of his theories, and adduces many new facts to bear them out. The general scope of the book remains unchanged.

Speech-Hesitation. By E. J. ELLERY THORPE. New York: Edgar S. Werner Publishing and Supply Co. 1900.

This small book of 75 pages is a practical record of the author's experience as a teacher in correcting certain defects of speech. It is written in a simple, straightforward way and ample use is made of actual cases for illustration. We are not prepared to say whether the method advised will do all that is claimed for it, but it is certainly worthy of careful trial. We recommend the book to those interested in voice training as an intelligent and valuable presentation of a highly complex subject.

The Surgical Treatment of Congenital and Pathological Disfigurements of the Face. Abstract of the Mütter Lectures of the College of Physicians of Philadelphia, for 1900. By JOHN B. ROBERTS, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic; Surgeon to the Methodist Hospital. Philadelphia: The Philadelphia Medical Publishing Co. 1900.

This is an abstract of the Mütter Lectures on this subject and is reprinted from the *Philadelphia Medical Journal.* The important subject of cosmetic surgery has not received the attention that it should. The writer gives a very interesting presentation of the subject, but the subject matter is worthy of better paper, printing and binding. Perhaps the author will expand these Mütter Lectures and will dignify the book by going more minutely into the detail of plastic work.

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THE THIRTY-FIRST ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS.

IN its report for the year 1899 the State Board of Health records a diminishing death rate in recent years, which is especially gratifying in the group of destructive infectious diseases and marked enough in them to much more than counterbalance the increased fatality of those classified as local diseases (of the brain, heart, lungs, kidneys), although in 1899 the rates from diphtheria, scarlet fever, measles and pneumonia were higher than in 1898, and the unusually large number of 105 cases of smallpox were reported, with 14 deaths. The total death rates in 1897, 1898 and 1899 were respectively for the State 18.1, 17.5 and 17.4 per 1,000 living, as compared with an average of 19.5 for a long period of years.

No case of smallpox occurred in any town in which rags were used for the manufacture of paper. The usual investigations of the board showed that there had been such gross violations of the laws regarding vaccination and such carelessness as to revaccinations that the laws regarding smallpox are given in full.

The reduction in the typhoid fever rate per 10,000 living has been from 8.2 in the five years 1871–1875 to 2.6 at present, and chiefly through the introduction of pure water supplies, the most notable improvement having been in Lawrence, from 11.2 in 1886–1890 to 2.5 in 1896–1899. But it is still, in general, too large.

In diphtheria there has been a steady decline in the mortality since 1894 excepting a rise in 1899 over 1898.

In the town of Brookline and in 10 of the 33 cities in the State there were hospitals for the treatment of infectious diseases, and in 22 cities provision was made in some sort of separate structure for the reception of persons suffering with smallpox, whereas the statutes provide that there shall be accommodations in every city of the State for the treatment of infectious diseases, if the local board of health demands it. In another respect also there is room for improvement in our public health service and we find that Governor Crane repeats the recommendation of the board in the following words:

"The smaller towns to the number of 150 or more are without organized health boards, and a decided advance might be made if measures could be taken for combining these towns into sanitary districts large enough to justify the employment of competent sanitary inspectors."

The high death rate reported from cancer, which has nearly trebled in about forty years, although in large part due to more accurate diagnosis and improved registration, has led the board to make a special investigation into the matter, to be reported later.

The advice given to cities and towns has grown to be of such magnitude and importance that its record occupies 120 pages of the report, all of which should be studied with care by every local board of health in the State which has to do with the problems of supplying pure water and providing decent drainage in their several localities, and the board's 11 pages of rules and regulations for preserving the purity of water supplies mark the great advances made in recent years, under the board's wise direction, in legislation and in sanitary control.

The systematic examination of water supplies of the State, begun in 1887, has been continued and reported upon from year to year. That and the examination of rivers; a summary of water supply statistics, including records of rainfall and flow of streams; experiments upon the purification of sewage and water at the Lawrence Experiment Station; the occurrence of iron in ground waters, and experiments upon methods of removal, and the purification of the sewage in the cities and towns in Massachusetts, altogether constitute a record of original work of 450 pages, which, with the board's previous reports upon these subjects, are of the first importance and authority.

Under the laws regarding food and drug inspection, there were examined during the year 6,186 samples of milk, with 1,680 found below standard; 3,069 samples of other kinds of food, with 454 below standard, and 547 of drugs, with 244 found adulterated. There were 47 complaints made by the board in the courts for violation of the statutes in these respects, with 45 convictions.

From the report upon the production, distribution and use of diphtheria antitoxin it appears that 31,997 bottles of antitoxin were distributed during the year to local boards of health, to contagious disease hospitals and to physicians. Examinations for diagnosis were made in 2,581 cases, of which 2,256 proved to be diphtheria. The board notes an increase in the dose of antitoxin used and remarks that expressions of doubt as to its efficacy are now rarely heard. An interesting table is given of cases of long persistence of diphtheria bacilli in the throats of patients convalescent from diphtheria.

There were 571 specimens examined for the bacilli of tuberculosis, and 76 suspected of containing malaria parasites.

Under the headings of statistical summaries, of disease and mortality, of health of towns and of inspection of summer resorts a mass of material of more than local interest is collected.

If our registration reports of births, marriages and deaths could be again placed under the competent direction of the board, where they belong, and if these reports could be raised from their present position to the high standard of our health reports, it would be well worth the united efforts of the medical profession and of statisticians to bring about that result.

THE REGISTRATION OF MIDWIVES.

IN a recent issue of this JOURNAL allusion was casually made to the enumeration of midwives in the German Empire. A more careful examination of the document referred to shows that the number of midwives in the German Empire in 1898 was 37,025, an increase of 2.7 per cent. over the number which was found in a previous decade, the population having increased meanwhile 14 per cent., so that the actual ratio to the entire population had diminished.

A better mode of comparison is the ratio to the number of child-bearing women, which had diminished from 1 midwife to every 298 women of this age (seventeen to fifty years) in 1887 to 1 in 322 in 1898.

The distribution of midwives in the German Empire differs essentially from that of physicians, since the latter are more numerous in the cities, when compared with the general population, while the midwives are more numerous in the country districts. In the great cities there are 45 midwives to every 10,000 inhabitants, but in the smaller districts there are 85 to every 10,000.

When compared with the births, living and stillborn, it appears that there was a great difference in the various districts, from a maximum of 1 midwife to every 18 births in Waldeck in 1897 to a minimum of 1 to every 121 births in Hamburg, the average for the German Empire being 1 to every 54 births.

Information upon this subject relating to the United States is very meagre and unsatisfactory. The only general information is that of the United States census, in which, unfortunately, nurses and midwives are classified together. The whole number of the combined class found at the census of 1890 was 47,586, of which 3,745 were in Massachusetts.

The figures of the State census upon this point are also of little value. For example, at the State census of 1865, 1,119 nurses and 5 midwives were found and enumerated. In 1875 there were 2,267 nurses. In 1885 there were 3,266 nurses, and 29 midwives, and in 1895 there were 4,472 nurses and 41 midwives. To any general practitioner of several years' practice, either in city or in country these figures are simply incredible, and undoubtedly show that a large number of midwives must have either escaped enumeration altogether, or must have been classified as nurses.

The mortality from puerperal fever and the incidents of childbirth have been materially diminished since the introduction of antiseptic methods in the lying-in chamber, but the deaths from these causes in Massachusetts alone still number several hundred in each year, and there is a growing belief in the profession to the effect that a considerable part of this mortality is due to the want of proper training among this class of attendants, and is therefore clearly preventable. There appears to be good and sufficient reason for requiring the application of at least a simple form of registration to those who pursue this important branch of medical practice, if not the addition of a reasonable degree of qualification for the performance of their duties. Laws requiring such registration are already in force in several States, and may also be reasonably enacted in Massachusetts.

The following extract shows to some extent the laxity of English law in regard to midwives:

Recently, at an inquest held by Mr. Braxton Hicks, it transpired that a midwife in Lambeth had certified that a child seven days old had died from inanition and convulsions. No medical man had been called to attend the child, which had been ill several days. The coroner, having ordered a post-mortem examination in this case, a fracture of the skull was discovered, which had caused death from pressure on the brain. The midwife in question stated that she had attended 7,000 cases, and had given death certificates whenever she thought it right. The registrar had always accepted them. They had been so far accepted, in fact, for twenty years.[1]

Dr. Walford, who quotes the foregoing incident, also states that the registration of still births is not required in England, and that burials without registration are known to occur. The registrar general also cites a case of the opposite kind, where a certificate of death was accepted by a registrar, no death having taken place.

A NEW KIND OF DOCTOR.

THAT sheer persistence and sustained, if misguided, effort commend themselves to the average optician of today, let the following testify.

In the evolutionary process of the optician the assumption of the doctor's title, whether legally or not, represents to him the highest form of development. Prior to the formation of the Medical Board of Registration such doctors filled the land, and it was no unusual thing to hear a well-to-do person announce that Dr. Opticus treated his eyes, the trouble meanwhile being unrelieved.

With the advent of the Board of Registration, however, and its increasing activity, these mushroom medical men disappeared as quickly as they had grown. True, one or two hardier spirits still exposed signs

[1] From a paper by Dr. E. Walford, Medical Officer of Health of Cardiff: Public Health, London, January, 1901, page 265.

which apprised the passer-by that the "doctor" still treated eyes, but after it was apparent in several instances that the board would tolerate no misuse by the laity of the term doctor, and backed up its position in the matter by prosecution and fines, even these disappeared.

Then there was a distinct transition period and lo! the "eye specialist" had arrived. On signs in letters, in many instances, a foot long, one who ran might read that John Smith, "Eye Specialist," would examine and treat the eyes. But even this was considered too much by the finicky gentlemen of the board, and peremptory notices that all such advertisements must cease produced an immediate effect in all but one case. The individual was duly prosecuted, sentenced to an imprisonment of three months, and a fine of five hundred dollars, in the Municipal Court. This sentence was sustained in both the Superior and Supreme Courts, the last ruling that if the defendant held himself out as an eye specialist he held himself out as "one who devoted himself to a branch of the healing art which is the profession of the physician and surgeon," and that "if the defendant held himself out as an eye specialist he held himself out as a physician and surgeon within the meaning of the statute." Again there was rapid changing of signs.

But the title so dear to the heart of the optician must be obtained in some way, otherwise how is he to be addressed as doctor across the counter? So now we have the third phase, which at least has the saving merit of being original. The New England Optical Institute has started with a free clinic on one of the streets of Boston. Any one who applies for treatment receives a card which states that he is the patient of a physician, who has for assistants thirteen opticians with names duly printed on the card, and this institute, which offers a course of instruction, has petitioned the General Court for the authority to grant two degrees — Bachelor of Optics, and Doctor of Physiological Optics. They are to be doctors at last, if the bill as brought in becomes a law. Can it be that the day is coming when the ambitious maker of obstetric forceps, who has read up some of the physical laws underlying traction, will hold himself out as an obstetric specialist, and wish special legislation and a degree?

MEDICAL NOTES.

EXTERMINATION OF MOSQUITOES IN HAVANA. — On the ground that recently made experiments prove beyond reasonable doubt that mosquitoes convey yellow fever, a systematic attempt is being made to exterminate the breeding places. Forty sanitary inspectors of the city have been ordered to make a thorough inspection of their districts and to report all stagnant water where mosquitoes might breed. Twice a month petroleum, which cannot be drained off, will be thrown upon the stagnant water, in order to kill the embryo mosquitoes. The department will also attempt to kill all mosquitoes in houses where cases of yellow fever appear.

LEPROSY IN CRETE. — A medical inspection of the island of Crete reveals the fact, according to the *Journal of Tropical Medicine*, that there are 380 known lepers in the island, but the actual number is believed to be double that figure. A leper asylum is contemplated for their reception. It is interesting to note that although lepers have been allowed to roam about at their will, their numbers are stated to be rapidly decreasing.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 23, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 139, scarlatina 40, measles 63, typhoid fever 18.

AN APPROPRIATION FOR LABORATORY INVESTIGATION. — According to the December *Monthly Bulletin* of the Connecticut State Board of Health, "During the present session of the legislature the State Board will ask for a moderate appropriation to enable it to offer gratuitous examinations of morbid specimens from suspected cases of infectious diseases. In 1898 Vermont established a hygienic laboratory, appropriating $7,500 a year for running expenses. After two years of experience with it, so highly was its work appreciated that the annual appropriation was increased to $10,000. Several other States are enjoying similar advantages, and still others are asking for them."

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A meeting of the Society for Medical Improvement, held January 1st at the Boston Medical Library, was devoted to the history of the organization, which dates from 1828 and its incorporation from 1839. Dr. J. G. Mumford read a paper on "The Story of the Boston Society for Medical Improvement," which was followed by felicitous speeches from Drs. J. C. White, Morrill Wyman, C. J. Blake, R. H. Fitz and G. B. Shattuck, for the most part reminiscent.

LOW DIPHTHERIA DEATH RATE IN CAMBRIDGE, MASS. — The number of cases of diphtheria reported last year in Cambridge was among the highest in the history of the city, but the proportionate number of deaths was the lowest in many years. There were 925 cases. Seventy-two of the patients died, that is, 7.83% of the total number. The Board of Health attributes the comparatively low death rate to the use of antitoxin.

SMALLPOX IN VERMONT. — Two cases of smallpox have recently been discovered in Shaftsbury, Vt. The usual precautions have been taken to prevent the spread of the disease, which probably was introduced from New York.

WALTHAM BACTERIOLOGICAL LABORATORY. — In the near future the bacteriological laboratory in Waltham will be transferred from the Waltham Hospital

to the residence of Dr. Chadwick, physician of the Board of Health. The assigned reason for the transfer is that the hospital is situated too far from the centre of the city.

NEW YORK.

ELECTRIC ROAD HELD RESPONSIBLE. — In a decision recently handed down the New York Court of Appeals recognizes the responsibility of an electric railroad company for compensatory damages to a person injured by being thrown down by the jerk of a car in starting. A woman passenger on the Brooklyn Heights Railroad who had been injured in this manner secured $4,000 damages in a suit against the company. On appeal this verdict was set aside, the court holding that there was contributory negligence on the part of the passenger; but the Court of Appeals has reaffirmed the original judgment given for the plaintiff by the trial court.

AN APPROPRIATION FOR IMPROVEMENT OF WATER SUPPLY. — At a meeting of the Board of Estimate and Apportionment held January 18th an appropriation of $4,025,000 was made for immediate work in improving the water supply of the city. The plan of the city officials at present is to appropriate each year from $5,000,000 to $10,000,000 for making additions to the water system, so that in the future there need be no fear of a water famine during a severe drought. This action is regarded as putting an end to any effort to make a contract with the Ramapo Company for a water supply to the city.

PETITION TO SUSTAIN THE PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS. — At the last meeting of the Medical Association of the Greater City of New York a resolution was adopted petitioning the governor to sustain the Pathological Institute of the New York State Hospitals for the Insane, and protesting against the threatened subversion of the work of the institute which has been so highly commended by the scientific men of this and other countries. Similar petitions are being sent by other medical societies and privately by prominent physicians.

A VERDICT FOR GAS POISONING. — Mrs. Fredericka von Mechow has secured a verdict of $9,000 in a suit for $25,000 damages, in the Supreme Court, against the New Amsterdam Gas Company, for the loss of her husband. She asserted that the company, in changing the meter in the house where she lived, left the connecting pipes in such a condition that there was an escape of gas during the night which poisoned all the family and caused the death of Mr. von Mechow. The case is said to have no precedent.

REINSTATEMENT OF DR. MOORE AT BELLEVUE. — Dr. J. W. Moore, the interne at Bellevue Hospital who was in charge of the alcoholic and insane wards at the time of the death of Louis C. Hilliard, and who was temporarily suspended from duty after that occurrence, has now been reinstated on the house staff by the commissioner of public charities. The case of Dr. Moore was submitted to the Medical Board of the hospital, who exonerated him from all blame in the matter.

STATISTICS OF BIRTHS AND DEATHS. — The Health Department's reports show that during the year 1900 the number of deaths recorded in the Borough of Brooklyn was 23,475, against 22,572 births. Dr. Byrne, the head of the Bureau of Records in that borough, states, however, that in reality the births considerably outnumber the deaths, for while every death is necessarily reported, many physicians, as well as midwives, fail to report births.

PUBLIC HEALTH. — Dr. Nelson H. Henry, member of the legislature from New York, has been appointed chairman of the Assembly Committee on Public Health. At a meeting held January 10th the State Board of Health protested against Governor Odell's proposed plan for a single-headed commission, and expressed the opinion that such a change would not be in the interest of economy, as suggested in the governor's message.

OFFICERS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS. — At the annual meeting of the Medical Society of the County of Kings (Brooklyn), held January 16th, the following officers were elected: President, Dr. Wm. Browning; Vice President, Dr. Henry A. Fairbairn; Secretary, Dr. David Myerle; Treasurer, Dr. O. A. Gordon; Directing Librarian, Dr. J. M. Winfield; Trustee, Dr. George R. Fowler.

DEATH REVEALS HER SEX. — It was not until the time of her death that Murray H. Hall, who kept a well-known employment agency, and who had passed as a man for over thirty years, was found to be a woman. During this time she had been twice married to other women and had attained considerable notoriety as a Tammany Hall politician. The cause of death was cancer of the breast.

BEQUESTS TO HOSPITALS. — The will of James D. Sarven, who died last April, left his residuary estate to several charitable institutions. The settlement of the estate has just been completed, and it is announced that St. Luke's Hospital and the Presbyterian Hospital, of New York, will each receive $59,140, and the Tarrytown Hospital, $5,000.

PORTRAIT OF THE LATE DR. AUSTIN FLINT. — On January 17th a portrait of the late Dr. Austin Flint, by George R. Boynton, was presented to the New York Academy of Medicine. Dr. E. G. Janeway made the presentation speech in behalf of himself and fourteen other fellows of the academy, who were the donors of the portrait.

NECROLOGIST OF THE NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. — At a meeting of the Board of Trustees of the New York Genealogical and Biographical Society held January 16th Dr. Ellsworth Eliot was elected necrologist.

DEATHS FROM INFLUENZA. — During the three weeks ending January 12th the number of deaths reported in the city from influenza was respectively 11, 36, and 75. In the corresponding weeks of last year the number was respectively 4, 8, and 9.

Miscellany.

IMMUNITY.

IT is not unusual in the experience of bacteriologists at one time or another, when raising the virulency of a strain of bacteria by passing the virus through a series of rabbits, to find every now and then certain of them which are unaffected by the inoculation. This individual immunity is often noticeable in man, for in any serious outbreak of diphtheria, plague, smallpox, or typhoid fever, there will be found those who not only may be in attendance on infected cases, but may also be in far from good health themselves, and who yet do not contract the disease. The cut-and-dried explanation of the above generally given is that the reason they do not suffer from the epidemic is that they are naturally immune, leaving, however, the question of why it is so unanswered. It has been lately shown that the Arabs as a race are immune from enteric fever, and the theory has been advanced that the immunization is attained by reason of the fact that the Arab in childhood is habitually accustomed to drinking foul, unwholesome water. It has been further pointed out by those who support these views that army medical statistics show that diseases of the digestive canal are twice as frequent among European troops as among the native soldiers in Algeria and Tunis. In traumatic infections the serous membranes of the Arab are very resistant, and particularly the peritoneum and the pleura, which probably accounts for the very exceptionally favorable results in abdominal surgery among the Arabs.

In striking contrast, however, with the above, it is found that Arabs as a race are singularly subject to pulmonary affections, and exhibit a very marked susceptibility to pneumococcal infection. Exceptions in regard to infections are very interesting studies, but it would seem difficult to establish the fact that there is such a condition as absolute racial immunity. In the case of anthrax, though it is very fatal for ordinary sheep, Angora sheep are not affected by it, and in the same manner ordinary rats are susceptible to anthrax, whilst white rats are immune, but these statements do not apply if the animals are placed under abnormal conditions. — *Medical Press.*

Correspondence.

THE PHYSICIANS' HOME; EAST TENNESSEE MOUNTAINS DESIGNATED AS A LOCATION.

MINOR HILL, TENN., January 12, 1901.

MR. EDITOR: By the Physicians' Home we mean a home, or retreat, for the aged and prematurely debilitated physicians of the United States. There are those in our ranks whose infirmity forces them to rest about one-half of their time. They go to one climate and another paying fancy prices for their changes. This home, or retreat, is for those — a place where they can go, breathe the pure air, fish in the streams, climb the mountains, look for minerals, raise fruits, vegetables, vineyards, orchards, poultry, etc. Such a home, with a well-organized board of directors, would be of incalculable benefit to the American medical fraternity. It would be an honor to our Commonwealth.

But one says, "How is such a home to be maintained?" In the study of this problem we have realized the fact that necessarily we would have to have the secretaries of all State and county medical societies collectors, so that when the annual expense account was due the members and all physicians in the county could hand it in to their secretaries. In this way it would be a very easy matter to correctly carry on the business.

Now as to the fund and how raised: There are 117,523 physicians in the United States. Say that one-half of these make a donation or subscribe a few dollars, this will amply erect the building and buy all the land necessary. Say the same number pay annually a few cents to the county collector, this will defray the expenses of the home. What we want is about 100 acres of farming land to be utilized in orchards, vineyards, gardens, poultry-yards, dairying, etc., and a commodious building. This will require an expenditure of about $150,000. We desire to say to those who have not reflected over the matter, that this move has been going on about six months, during which time it has received many cheers; received the endorsement of some of the best medical men in our government; yet, however, we have not given it wide publicity solely because it takes, in such a large enterprise as this, much labor and co-operation to effect publicity. During the time I, having been advised to do so, appointed a Committee on Location consisting of Drs. E. F. Williams, De Pere, Wis.; J. M. Hole, Salem, O.; O. C. Anderson, Holston Bridge, Va.; Douglass Hayes, Tracy City, Tenn., and Chalmers A. Parker, Fort Worth, Tex. They, after careful search into the matter, taking into account the geographical division, climate, access, cost of living, etc., have given their opinions in favor of the mountains of East Tennessee, settling as the future spot upon which to erect this home at Bristol, Tenn.–Va., a twin city of about 12,000 inhabitants on the line of Tennessee and Virginia, midway between New York City and New Orleans. Of course this location is open for approval or disapproval. Any one interested in location of this medical home should investigate and give his opinion, then should Bristol not meet with approval a new committee should be appointed. As to the healthfulness of this region, Ex-Gov. Taylor, who was reared in the mountains of East Tennessee, can inform you.

The people of Bristol, Tenn.–Va., are exceedingly anxious to have the home materialize there and have offered a large bonus in the way of some property situated at Fairmount, on an elevation overlooking the mountains. This property is actually worth over $100,000, but the offer for consideration before the American medical fraternity is $35,000. A committee should be appointed when this fund is raised to examine this property. There should not be anything definitely done until the whole regular, ethical profession is consulted.

I visited Bristol, Tenn.–Va. (the main street is the State line), on December 21, 1900, meeting representatives of the Committee on Location and other physicians, at which time we effected a temporary organization, electing Dr. G. M. Peavler, Bristol, Tenn., president; Drs. C. A. Abernathy, Pulaski, Tenn.; Chalmers A. Parker, Fort Worth, Tex.; Francis M. Prince, Bessemer, Ala.; A. Garcelon, Lewiston, Me.; J. W. Smithwick, La Grange, N. C.; J. C. Anderson, Holston Bridge, Va., vice-presidents; Dr. N. H. Reeve, Bristol, Tenn., secretary; Dr. Jno. S. Harris, Minor Hill, Tenn., corresponding secretary; Dr. Jno. C. Anderson, president National Bank of Bristol, Bristol, Tenn., treasurer.

With a well organized board of directors, a board of council, we cannot see why this home cannot be a financial

success. It can be and should be the pride and glory of every American practitioner. It is the first attempt in the history of any nation.

True life draws nigher
Every year.
And the morning star climbs higher
Every year.
Life's hold on us grows slighter,
And the heavy burden lighter,
And the immortal dawn brighter,
Every year.

This home is to be consigned to the prosperity of this, the most glorious nation on earth. It is to be dedicated to the memory of our forefathers in medicine; to the regular ethical profession of medicine in the United States; to the American Medical Association; to the various State and county (State, State divisions and municipal) medical societies. Any practitioner of regular medicine can contribute to the fund and enjoy its benefits whether a graduate or not. If you are a member of a medical society give us your secretary, also other members. If not a member give us the names of the physicians in your town or county. Take an interest in this, the most important enterprise of the twentieth century. Let a fraternal brotherly love reign throughout America.

Very truly yours,
JNO. S. HARRIS, M.D.

RE "KIRKES' HANDBOOK OF PHYSIOLOGY" IN AMERICA.

LONDON, January 5, 1901.

MR. EDITOR: My attention has been drawn to the reviews of two books each bearing the title of "Kirkes' Handbook of Physiology," which appeared in your issue of the 8th of November last and to the subsequent correspondence arising therefrom.

As my name is stated to appear in conjunction with that of my late colleague, Mr. Morrant Baker, upon the title page of one of these editions, perhaps you will be good enough to allow me to supplement, in one or two particulars, the history of this well-known textbook subjoined by your well-informed reviewer, and at the same time to make clear what has been my connection with it.

In the year 1848, Dr. Wm. Senhouse Kirkes, assisted by Mr. (afterwards Sir James) Paget, who was at the time lecturer on general anatomy and physiology at St. Bartholomew's Hospital, brought out a "Handbook of Physiology," which was largely based upon Dr. Baly's translation of "Müller's Elements of Physiology," the first edition of which in English was published in 1837. Four editions altogether appeared of the handbook under the same auspices. The fifth edition, then called "Kirkes' Handbook," was brought out in 1867 and was edited by Mr. Morrant Baker, who continued to be sole editor until 1880, when I assisted him in editing the tenth edition. The book, still called by the same title, continued under our joint editorship until 1892, when the thirteenth edition was published. In 1894 a revise of this edition was issued which was done, as far as I can recollect, by myself. After this we resigned the joint editorship and since then have had nothing whatever to do with the book.

The fourteenth edition was edited by Professor Halliburton and he, having a freer hand, considerably altered the book, enlarging its scope, rearranging the subjects, and judiciously pruning the parts which required that operation. The result of his work was to produce almost a new handbook of physiology, which might well have received his name instead of the old title. Naturally the majority of the illustrations, many of which had been produced at great expense, were retained, as was also, to a large extent, the histology. In the subsequent editions Professor Halliburton has continued his efforts to keep the work well in the van of physiological progress and I think that in his hands the gloomy forebodings of your reviewer, "that in a few years this publication will be a thing of the past" will go unfulfilled.

Such being the case, how comes it that an edition of "Kirkes' Handbook" is still published in America having upon its title page the names of editors who gave up all connection with the work in 1894? I am afraid the phenomenon can only be explained by the mysterious workings of the publisher's conscience in America! This, however, I do know, that the continued use of the names of Mr. Morrant Baker (whose lamented death took place in 1896) and myself upon the title page of any edition of "Kirkes' Handbook" is entirely unauthorized and is, in my opinion, unjustifiable.

I remain, dear sir,
Yours very truly,
VINCENT DORMER HARRIS, M.D. (Lond), F.R.C.P.

ELECTRIC AUTOMOBILES A SOURCE OF ELECTRIC LIGHT.

JAMAICA PLAIN, January 17, 1901.

MR. EDITOR: It may be interesting to the medical profession to know of a new use to which the electric automobiles can be put, that will be valuable not only to physicians, but to their patients. For the past two months I have been using an electric automobile, to the exclusion of the horse. On the afternoon of January 10th, on visiting a patient, I found it would be necessary to operate upon her that evening. Realizing the seriousness of the case and the delicacy of the operation, for it would have to be a laparotomy, it troubled me a little to know how to provide sufficient light to enable us to explore the abdomen thoroughly and safely, as etherization by gas or lamp light is not without its dangers. About 5.30 P. M., while riding around in the automobile, the thought came to me suddenly that I might utilize the electricity in my carriage to provide light for the operation. I immediately arranged for a long insulated wire about 40 feet, to which was attached an incandescent light with a reflector, using a 52-volt 6-candle-power lamp, also a 100-volt 16-candle-power lamp. I also had several spare ones in case one of them should burn out during the operation.

The automobile was run up on the patient's lawn by the side of the house, under the window, and the wire attached to the battery. We then drew the other end into the second story window, and running a strong line across the room, suspended the lamp from it over the operating table. On turning on the power, we had a most brilliant light, and coming from a storage battery, it was steadier and more uniform than the ordinary incandescent light, lighting the whole room — a large one — and giving perfect light to the operator, so that the laparotomy was performed with ease and comfort. In fact, the light was as good as in any operating room in Boston, and proved very successful in every particular. We burned it for over two hours, and could have burned it all night if necessary. It was a very rainy night with snow on the ground, which had no effect on the light or battery.

It seems to me that the results of that evening will prove valuable to physicians, because now we may have perfect light in any house, whether in the country or in the city, with no trouble, and the most delicate operation may be performed as easily and safely in the night as it could be by daylight. An automobile may be taken anywhere for such purposes, and surely this makes the electric carriage of even more value to physicians. Other fields are thus opened up for their usefulness to us which I will not enlarge upon at this time, but will simply mention the possibilities of utilizing them for cauteries, giving electricity to patients, etc., by attaching the proper appliances to them, which can be done easily and readily.

Very truly yours,
JOSEPH C. STEDMAN, M.D.

METEOROLOGICAL RECORD

For the week ending January 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...6	30.24	28	37	18	57	79	68	S.W.	S.W.	12	8	C.	C.	
M...7	30.02	36	43	28	68	82	75	S.W.	W.	8	10	O.	F.	
T...8	30.27	31	35	27	72	78	75	N.W.	S.	7	10	C.	C.	
W...9	30.12	40	50	31	81	82	82	S.W.	N.W.	14	14	O.	O.	
T...10	30.27	29	35	23	68	96	80	N.E.	N.E.	16	18	O.	R.	.32
F...11	30.02	26	33	20	41	95	68	N.	N.E.	9	10	O.	N.	.39
S...12	29.80	39	35	23	100	89	94	N.	W.	20	12	N.	C.	.83

☞

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N, snow. † Ind cates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 12, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1606	393	19.56	23.92	.75	.81	4.30
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	215	62	22.32	16.27	—	2.32	3.72
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	146	54	33.56	26.71	2.05	8.22	2.05
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	64	14	17.16	14.04	—	—	4.68
Boston	560,892	233	68	22.16	18.87	.85	1.71	4.29
Worcester	118,421	33	14	12.12	12.12	3.03	—	—
Fall River	104,863	—	—	—	—	—	—	—
Lowell	94,869	27	5	3.70	22.20	—	—	—
Cambridge	91,886	24	10	20.85	16.68	—	4.17	—
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,559	17	5	11.76	29.40	—	—	5.88
New Bedford	62,442	20	10	10.00	10.00	—	—	—
Springfield	62,059	13	1	23.07	23.07	—	7.69	—
Somerville	61,643	16	8	31.25	18.75	—	6.25	12.50
Holyoke	45,712	16	7	12.50	18.75	—	—	6.25
Brockton	40,063	12	1	8.33	91.63	—	—	—
Haverhill	37,175	7	—	42.84	—	—	—	—
Salem	35,656	17	4	11.76	—	—	—	11.76
Chelsea	34,072	9	4	11.11	—	—	—	11.11
Malden	33,664	10	2	30.00	10.00	—	—	10.00
Newton	33,387	7	1	28.56	42.84	—	14.29	—
Fitchburg	31,531	8	2	25.00	12.50	—	—	12.50
Taunton	31,036	10	1	20.00	10.00	—	—	—
Gloucester	26,121	4	—	—	—	—	—	—
Everett	24,336	11	6	54.54	18.18	—	—	36.36
North Adams	24,200	6	2	33.33	16.66	—	—	16.66
Quincy	23,899	6	—	50.00	—	—	—	—
Waltham	23,481	5	—	40.00	20.00	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	5	1	20.00	20.00	—	—	20.00
Chicopee	19,167	2	—	—	50.00	—	—	—
Medford	18,244	3	1	66.67	33.33	—	—	33.33
Newburyport	14,478	4	1	25.00	—	—	25.00	25.00
Melrose	12,962	4	1	25.00	50.00	—	—	—

Deaths reported 2,576; under five years of age 679; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 538, acute lung diseases 572, consumption 278, diphtheria and croup 108, diarrheal diseases 39, typhoid fever 39, scarlet fever 18, whooping cough 15, measles 5, cerebrospinal meningitis 2.

From whooping cough New York and Baltimore 4 each, Pittsburg 3, Boston, Cambridge, Somerville and Everett 1 each. From cerebrospinal meningitis North Adams and Clinton 1 each. From scarlet fever New York 12, Pittsburg 3, Boston 2, Worcester 1. From measles Boston 3, New York 2. From typhoid fever New York 13, Pittsburg 12, Baltimore 5, Boston 4, Cambridge, Springfield, Somerville, Newton and Newburyport 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,296, for the week ending December 29th, the death rate was 16.9. Deaths reported 3,773: acute diseases of the respiratory organs (London) 325, whooping cough 88, diphtheria 78, measles 59, fever 46, diarrhea 34, scarlet fever 29.

The death rates ranged from 9.5 in Huddersfield to 23.2 in Hull: Birmingham 18.2, Bolton 14.0, Bradford 15.2, Bristol 16.2, Cardiff 10.2, Derby 16.9, Gateshead 19.5, Halifax 10.9, Leeds 18.3, Liverpool 22.4, London 16.7, Manchester 19.4, Newcastle-on-Tyne 20.9, Nottingham 17.2, Plymouth 15.8, Portsmouth 13.6, Salford 20.1, Sheffield 19.2, Sunderland 15.2, Swansea 16.3, West Ham 13.9, Wolverhampton 12.2.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 19, 1901.

J. B. DENNIS, assistant surgeon, to delay reporting for duty at Naval Academy until January 21st.

J. C. PRYOR, assistant surgeon, ordered to duty at Naval Hospital, New York.

R. B. WILLIAMS, assistant surgeon, detached from the Navy Yard, New York, and ordered to the Pensacola Navy Yard.

T. M. LIPPITT, assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to the Naval Hospital, Mare Island, *via* "Solace."

B. L. WRIGHT, assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to Naval Hospital, Mare Island, per "Solace."

RESIGNATION.

FREDERICK S. WARD, M.D., who has for the past two years had charge of the pathological work of the Taunton, Mass., State Hospital has resigned.

BOOKS AND PAMPHLETS RECEIVED.

The Anthropometric Manual of Amherst College. 1900.

Aseptic Minor Gynecology with Demonstrations. By Augustin H. Goelet, M.D. Reprint. 1900.

Transactions of the American Gynecological Society for the Year 1900. Vol. XXV. Philadelphia. 1900.

Twenty-Second Annual Report of the State Board of Charity of Massachusetts, January, 1901. Boston. 1901.

The Failure of the Consensus Judgment with Reference to Tuberculosis. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1900.

Revised Interpretation of the Central Fissures of the Educated Suicide's Brain Exhibited to the Association in 1894. By Burt G. Wilder, M.D. Reprint. 1900.

Medico-Surgical Aspects of the Spanish-American War. By Lieut.-Col. Dr. Nicholas Senn, Chief Surgeon, U. S. Volunteers, etc. Chicago: American Medical Association Press. 1900.

Medical and Surgical Reports of the Boston City Hospital. Eleventh Series. Edited by Herbert L. Burrell, M.D., W. T. Councilman, M.D., and Charles F. Withington, M.D. 1900.

If an "Isthmus Rhombencephali" Why Not an "Isthmus Prosencephali?" A New Head-Rest for the Removal of the Human Brain. By Dr. B. B. Stroud, Cornell University. Reprints. 1899, 1900.

Nephrorrhaphy. Address in Obstetrics. Proctorrhaphy: The Suspension of the Rectum for the Cure of Intractable Prolapse and Inversion of that Organ. By Charles P. Noble, M.D., Philadelphia, Pa. Reprints. 1900.

A Clinical Study of the Lymphatic Glands in One Hundred Cases of Scarlet Fever. A Clinical and Pathological Study of the Rash of Scarlet Fever. By Jay F. Schamberg, A.B., M.D., Philadelphia. Reprints. 1899-1900.

A Guide to the Instruments and Appliances Required in Various Operations. By A. W. Mayo Robson, F.R.C.S., Senior Surgeon to the Leeds General Infirmary, etc. Second edition. London, Paris, New York, etc.: Cassell & Co. 1900.

A Textbook of Pharmacology and Therapeutics on the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.A., M.D. (Aberd.). Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Physical Diagnosis in Obstetrics: A Guide in Ante-partum and Post-partum Examinations for the Use of Physicians and Undergraduates. By Edward A. Ayers, M.D., Professor of Obstetrics in New York Polyclinic, etc. Illustrated. New York: E. B. Treat & Co. 1901.

Original Articles.

THE TREATMENT OF THE LATER PHASES OF HEART DISEASES.[1]

BY JOHN L. HEFFRON, M.D., SYRACUSE, N. Y.

My subject is as old as the art of medicine. The treatment of the later phases of chronic heart diseases has engaged the serious attention of medical men of all ages and of all nationalities. There is no expectation on your part that any new method of treatment is to be proposed in the course of this paper, or that any claim to fresh discoveries that can actually cure conditions long recognized as incurable will be attempted. Indeed, the subject may be considered by many as worse than "threshing of old straw," and many may feel that in the management of such conditions as must in the end inevitably lead to death, there is no inspiration, and that time spent in the discussion of the amelioration of distressing symptoms resulting from an incurable malady might better be given to more important matters. But is this true? How much of the life of every physician is of necessity given to those whom he knows he cannot cure? If we exclude the diseases which are self limited and lead naturally to recovery, and in the management of which the wise physician accurately observes the evolution of symptoms, and resolutely refuses to complicate the situation by active interference when such interference is not positively indicated, and those cases in which the imagination of the patient concocts diseased conditions out of the results of imperfect modes of life (and this is the large field in which the charlatan reaps his enormous harvest), and then excludes those conditions which the surgeon's skill alone can cure, we shall discover that at least one-fourth of our time is consumed in the treatment of chronic ailments ultimately and of a necessity fatal. Is, then, such a proportion of our time and energy wasted? Put yourself in the place of your patient.

If one could have his ability to work even partially restored, or in such an autumn as this, if one could but sit at a window with body at ease and watch the wonderful close of a summer's glory, or if, with greater vigor, one could go forth and enjoy the procession of the seasons and exult in nature's various moods, or, if even helpless, he could lie comparatively free from pain, and for a brief period longer look into the eyes of affection, would it not be well worth all the effort and all the sacrifice of time and energy on the part of the attending physician whose skill made the prolongation of such enjoyments possible? As long as human nature remains unchanged, so long will the desire for life, even under adverse conditions, be dominant.

To limit the discussion within reasonable bounds we will consider only cases of chronic endocarditis, and, to define what is intended by "the later phases of chronic heart disease" will indicate that it is meant to cover that period of time, short or long, after compensation has once failed.

Let us briefly review the conditions which may supervene upon failing compensation. So long as the circulation is maintained at its normal standard, the subjects of chronic heart disease are able to go about their ordinary avocations with usual ease and comfort, however much fuss the heart may make in accomplishing its task, and they are made aware of circulatory defect only upon some severer exercise than is their wont, or by some atrocious errors in diet. It is the commonest experience for a physician to detect a heart lesion in the course of a physical examination of a person in whom the heart is not under suspicion. Indeed many subjects of long-standing chronic endocarditis never come under professional observation until beginning failure of compensation forces upon their attention symptoms the nature of which they do not suspect. What then is the pathologic groundwork of our therapeutic problem? Chronic endocarditis results in the disabling of one or more valves of the heart in every instance. In many cases there is also the implication of other intracardiac structures, as an atheromatous deposit in the lining of the ventricles, changes in the papillary muscles, and alterations in the tendons guying the valves. There is always change in the musculature of the heart. Hypertrophy of the muscle upon which extra work is put is nature's law. When this hypertrophy is unequal to the demand upon it, a hollow muscular organ undergoes dilatation, and this process is frequently accompanied by a degeneration of the muscular substance, the most frequent type of which is the fatty infiltration. When the heart becomes unequal to its task a circulatory crisis occurs marked by venous engorgement of all tissues and organs. This is manifested by impaired digestion, imperfect elimination of waste products, loss of strength, restlessness, disturbed sleep, and rapidly rising dropsical effusions into the cellular tissues and later into the serous cavities. Sclerotic changes in arterial walls ultimately result and not infrequently interstitial nephritis supervenes. If this hasty sketch is in accordance with the facts, it follows that the treatment will be guided by (1) the condition of the heart; (2) the abnormal conditions resulting from a disturbed circulation, and (3) the general condition of the patient. These conditions are so mutually dependent one upon the other that it will be difficult to discuss each categorically. We are thus forced to proceed as we do with the patient before us, from general considerations to particular indications.

When compensation has failed, the first indication is to relieve the heart of all extra work. Rest in the recumbent position accomplishes this most perfectly as far as the postural treatment is concerned. It relieves the heart physiologically of from ten to twenty contractions per minute as compared with the usual conditions which prevail when one is simply "confined to his room" in the usual acceptation of that term. When dyspnea is marked this position is difficult of attainment at first, but can soon be accomplished under favorable conditions. The rest should be complete, and should include forbidding to sit up even during feeding and the necessary care of the excretions. Of nearly as great importance is the exclusion of visitors whose presence excites emotion of any kind.

Secondly, the volume of blood to be propelled by the heart should be diminished as much as possible. To accomplish this the direct diminution of the volume of the blood by blood letting is seldom indicated, though in extreme cyanosis not the expression of simple venous congestion most brilliant results have been

[1] Read before the Syracuse Academy of Medicine, December 18, 1900.

reported from blood letting and even paracentesis cordis. The use of such hydragogue cathartics as least disturb the general condition and most aid in the elimination of waste matters with the watery evacuations is imperative. For this purpose there are many candidates for favor, but my experience leads me to place the reliable remedies capable of accomplishing this purpose in the following order: elaterium, calomel, salines. At the same time the diminution of ingested fluids must be insisted upon. It is desirable for the nurse to keep a record of the relation of ingested fluids and excreta with as much accuracy as conditions permit. With the aid of such a record one can easily avoid errors on either side.

Thirdly, the distressing nervousness of the patient, which increases the irritability of a heart already overburdened, must be controlled. For this purpose ice bags over the heart give a certain amount of relief, but it is almost always necessary to employ remedies directly acting upon nerve centres. It is here that the alkaloids of opium can be administered without hesitation. Codeine should first be tried in doses of one-half grain hypodermically. It will usually suffice, and when it can be used it relieves the patient of the narcotic effects of morphine. It does not, however, differ from morphine in its effects upon the secretions and will as surely produce constipation as will morphine. If it fail to induce the desirable quieting effect and compel sleep morphine must be used. Both alkaloids stimulate rather than depress the myocardium if used in therapeutic doses. Heroin is a modern fraud. It is not a new alkaloid of opium, but a salt of morphine, and is in no way superior to the more familiar salts and lacks none of their evil effects. Already several cases of chronic morphine poisoning have come under my observation from the use of heroin and one of them was in a physician. If the nervousness is not so extreme though positive, I have obtained most gratifying results from the use of the abstract of cannabis Indica made by the late and ever lamented Dr. William Manlius Smith. The effect of this drug is frequently most happy, and it is free from the objectionable action on the various secretory organs. This preparation is so uniform and so efficacious that as a rule I use it at first, and if it fail add to it a small quantity of codeine or of morphine.

Closely related to this relief of all unnecessary work of the heart is the management of the diet. It is well known that a full meal causes increased action of the heart, first physiologically, then mechanically by the irritation of a distended stomach crowding against a crippled heart. If digestion is feeble and fermentation of food in the stomach take place, the crowding against the heart of a stomach distended with gas and imperfectly digested food may so disturb the heart's innervation as to produce even fatal results. The invariable rule must therefore be for such a patient to take small amounts of easily digested food, at such intervals as allow of the perfect elaboration of the ingesta. In the diet of these patients there are certain necessary exclusions. Substances which are bulky and of small nutritive value, and which are usually of slow digestion, as are most of the vegetables, foods highly seasoned with condiments which naturally stimulate the heart, preparations which represent chiefly the waste matter of other animals, like beef tea and all soups which chemically have an analysis closely resembling that of urine, all alcoholic beverages, and all acid fruits and vegetables, because so many chronic heart cases have a rheumatic background which demands alkalies, must be rigidly excluded. All these, without exception, impose an extra burden upon an already overburdened organ, and are non-essentials to nutrition, however grateful they may be to an overcultivated palate. The selection of the ideal dietary in each individual case must be the resultant of an intimate acquaintance with the patient's digestive ability and tastes, and a thorough knowledge of the nutritive value of food stuffs. In the diet of these patients during the past six months I have been greatly helped by a pure albuminous food representing the casein of milk, originally manufactured in Germany as a competitor of meat from an economic standpoint, known as Plasmon. It has little flavor or odor, and can be combined with many foods, but when Professor Virchow tells you he has in his own case obtained excellent nutritional results by using Plasmon for dinner to fortify a puree of potatoes and apples, you know his nationality at once, and will not be tempted to force that particular dish upon any but a German palate. Fresh eggs, raw or slightly cooked, custards, junket, scraped or chopped lean beef, mutton or chicken, the expressed juice of broiled beef or mutton, stale bread toasted, possibly a baked potato, with light milk puddings, make up a suitable dietary for average cases, while in those whose digestive ability is greatly impaired the various predigested foods, including peptonized milk gruels, the peptonoids, Just's food, etc., will serve to bridge over the interval during which the general condition is undergoing improvement, and the heart is recuperating its energies. The method of administering predigested foods is of considerable importance. Rather than give a comparatively large quantity at stated intervals it is productive of far better results to give small portions at very frequent intervals, letting the patient sip it by mouthfuls every fifteen minutes. Attention to so slight a detail as this will frequently give you control of a stomach rebellious from venous engorgement, and result in more perfect nourishment of your patient than is possible from any other means I have ever employed.

With these simple means, rest, diet and free catharsis, it is surprising how many cases are relieved from threatening symptoms, and are prepared for a more vigorous treatment which shall restore lost compensation.

Not infrequently, however, our services are first required in cases where failure of compensation has resulted in dropsy. Cardiac dropsy is first manifested by effusion into the cellular tissues farthest from the heart. Beginning in the ankles it gradually ascends to the trunk, then is added ascites, and later hydrothorax. Latest appears edema of the upper extremities, though in some cases this is observed previous to the appearance of hydrothorax. Though dropsy is but a symptom pathologically, it is a therapeutic entity. The indications for treatment are clear. The effused fluid must be reabsorbed from the tissues or cavities and be removed from the body. If this can be accomplished physiologically the effect is much more permanent than when the fluid is simply removed mechanically. Often, however, when all the cellular tissues and serous cavities are distended with serum, it is difficult if not impossible to get a physiological action of drugs until a certain amount of re-

lief is attained by mechanical means. It has been frequently observed that digitalis and all diuretics will fail to act until the dropsy has been somewhat relieved by other means and that after such relief the usual physiological action of a drug, say digitalis, will be manifested and complete the elimination. All three of the emunctories should be acted upon, the skin, the bowels and the kidneys, and usually means can be adopted whereby all three can be simultaneously influenced. If a patient is sufficiently strong the hot-air cabinet bath can be used daily, while on the same day the purgative effect of elaterium is obtained and the kidneys are stimulated to free action by the use of digitalis, squill or the acetate of potassium. The effect of the cabinet bath in my practice has never resulted in anything but good. Elaterium has almost never produced any unpleasant effects, and some diuretic has usually been possible of administration without disturbing digestion. If digitalis disagrees in the ordinary form of the tincture or the infusion, digitalin from a reliable maker can always be used and depended on for effect. If the nature of the heart lesion be such that digitalis is contraindicated, efficient doses of pure caffeine, which is much better than diuretin, will produce good results, or the acetate or bitartrate of potassium in an infusion of juniper berries can be given. In Trousseau's "Clinical Medicine" you will find a prescription for a diuretic wine which is today used in the Hôtel Dieu in Paris, and which presents in a form not unpalatable the combined virtues of squill, juniper, digitalis and the acetate of potassium. It can be made by any pharmacist and has often given me most gratifying results. If combined diuresis, diaphoresis and catharsis fail to give results in a few days, it is advisable to resort to mechanical aid in relieving the distended tissues. Before a resort to tapping is made it is my practice to puncture the skin of the dorsum of the foot and of the leg in many places. This must be done with all the aseptic precautions used in surgery. A sterile skin is rapidly punctured in many places by a sterile needle, and wrapped at once in sterile gauze by a nurse with sterile hands. Under such conditions I have never seen inflammatory reaction, and very recently I have seen a general anasarca so greatly relieved by such practice that Trousseau's diuretic wine with elaterium have completed the elimination of all the effusion in all tissues and cavities, so that the woman has gone down town on the street cars and completed her Christmas purchases without distress or great fatigue, though I am free to confess it was without my sanction or knowlege. If these means fail and the peritoneal cavity and the pleural sacs in addition to the cellular tissues are not relieved, it is imperative to resort to paracentesis. In my own practice, almost without exception, paracentesis for cardiac effusion has given only temporary relief. In other words, when the heart lesion is so great, or the muscular power of the heart so little, that with the means discussed no remedial effect is produced, the cavities emptied of fluid by paracentesis will refill more or less rapidly and require repeated operations for temporary relief until the patient's strength is exhausted and death supervenes.

The general condition of the patient under the treatment thus far indicated will almost uniformly improve. The stomach will ordinarily resume its functions, sleep will be possible and an increase of strength will develop *pari passu*. There is no reason, however, why the subjects of chronic heart disease should be deprived of the advantage of special treatment in case of impaired digestion or of insomnia or of any other intercurrent malady. To aid the complete retrograde metamorphosis of waste matter I have found the systematic administration of oxygen of very great value. If oxygen be deeply inhaled and retained as long as possible before expiration it enters the blood more freely and aids in the oxidation process much more than if simply administered with the inspired air in a haphazard way. Such a use of oxygen for fifteen consecutive inspirations is much more efficient than its repeated administration as ordinarily used. The stimulation of the liver by calomel with soda administered twice a week is of very great value in many cases and particularly in patients who have a tendency to the accumulation in the blood of imperfectly elaborated waste matter or who are the subjects of catarrhal processes in gastric or intestinal mucous membranes.

It remains now to review briefly the means at our disposal other than those already considered for improving the condition of the heart. It goes without saying that a valve once deformed cannot be restored to its normal state. There is a considerable list of cardiac stimulants all of which are of more or less value. It has always seemed to me that a knowledge of how to use effectively the best remedy is of greater value than a wide acquaintance with a long list of remedies of more or less doubtful value. So while I do not minimize the value of sparteine, cactus, convallaria, strophanthus and adonis vernalis, I do find that a careful observation of my results gives me ever increasing confidence in the intelligent use of that prince of all cardiac stimulants, digitalis.

Digitalis strengthens the systole and prolongs the diastole of the heart and increases arterial tension by its action on the vasoconstrictors. It is only this effect on arterioles that is sometimes not desired in chronic heart disease, and this chiefly when atheromatous changes have taken place, or wherever chronic interstitial nephritis has developed. A very common pathological sequence is rheumatism, endocarditis and interstitial nephritis. In such cases and in the aged if the temporary stimulation of the heart is imperative, the effect of digitalis on the arterioles can be overcome by the use of nitroglycerin without interfering with the action on the heart. Digitalis is best administered in the form of the fresh tincture, or of the powdered leaves. According to the Pharmacopeia of 1890 eight minims of the tincture is equivalent to one grain of the leaves. The dose must be such an amount as is necessary to produce the desired effect. Seldom will it be necessary to exceed ten grains of the leaves in twenty-four hours, but there are cases in which success can only be obtained by the administration of a few very large doses of this drug. There are cases of cardiac embarrassment which are not due to ineffectual contractions of this hollow viscus, but to excessive action of an hypertrophied organ. Of course in such cases digitalis could but add to the embarassment, while aconite properly given will quickly equalize the circulation. It might be said right here that the routine administration of digitalis or of any other cardiac stimulant so soon as a cardiac murmur is diagnosed is most pernicious practice. Such drugs are only indicated

in failure of circulatory power, and the amount of fuss made by a heart in accomplishing its task is not the factor which indicates the necessity of any cardiac stimulant. In cases of sudden failure of cardiac power a quicker acting drug than digitalis is needed. Here nitroglycerin, alcohol, ammonia and strychnine are available and will support the heart until the tardier effects of digitalis can be obtained. Strychnine in large doses hypodermatically until improvement is manifest has often saved a life in imminent danger. The dose of digitalis is to be lessened as the heart increases in tone under the influence of rest and increased nutrition until it can finally be omitted; for, like all drugs, a tolerance is finally established and the desired effects in emergencies become impossible in those who have contradicted the digitalis habit. Digitalis is not a drug to be administered continuously and habitually, though its use may be necessary for a considerable length of time.

There are many other methods by which the musculature of the heart can be permanently strengthened. The heart is a muscle. It obeys the laws of muscles. If little is required of it, it works quietly and easily, if more, it increases in bulk and power. The re-establishment of lost compensative power must be the ultimate object of all therapeusis. Exercise increases the tone of muscles. So judicious and graduated exercises will increase cardiac tone. After the critical moments of a failure of compensation are passed successfully by the use of such methods as have been described, the training of the heart must begin. At first gentle massage, then passive exercises, later resistance exercises, and last voluntary exercises, such as driving, then walking, and even bicycling on level streets when patients are already masters of the mysteries of the wheel. The hill climbing recommended by Oertel is of greatest value in training feeble hearts if carefully carried out. Up the hilly streets of our city heart patients of mine and doubtless of other members of this academy daily walk. They mark their daily progress by the houses. They never overstrain the heart by going too far, for they are taught that excess is failure, and that beginning embarassment of respiration is a sign that return is imperative, and they are indoctrinated with the knowledge that when they go forth they must of necessity return, and return unexhausted, if therapeutic effect of their exercise is expected.

The treatment of the brothers Schott at Bad Nauheim was based upon scientific data. The effect of carbonated baths is stimulating to the nerve centres of the skin and to the general circulation. Combined with the use of graduated exercises, careful diet, and hygienic living it has accomplished much in the cases of those who have been able to carry out this "cure." It can be easily and successfully practised at home, and the baths natural to Nauheim imitated by art in any home possessed of bathing facilities.

The subject of chronic endocarditis must be taken into the entire confidence of his physician. He himself and not some member of his family must be told of his actual condition, for he can do for himself, if he can be brought to an intelligent conception of his condition, what no attendant can do for him. In matters of rest and diet and treatment, if he be resolute in his desires and intentions to recover, he can compel fate itself. If he, on the other hand, through ignorance or self will, cries out against this restriction or that necessity, he will quickly pay the penalty for transgression, and often by sacrificing life itself.

If, fortunately, a failing compensation be restored, as it can be in very many cases, the patient must be kept under frequent observation, and, though he may attend to his ordinary business, he must understand that excessive demands upon his powers, both physical and mental, are interdicted, and that the very condition of the prolongation of his life is moderation. Life under such limitations is often sweet and desirable.

PERITONSILLAR ABSCESS.[1]

BY F. C. COBB, M.D., BOSTON.

PERITONSILLAR abscess is a subject with which we are all more or less familiar. It is a disease usually limited to about a week's duration, very painful to the patient and more or less trying to the physician who punctures it, often with the result of only increasing the sufferings of his patient.

The object of this paper is to urge the use of a little more care and study in the relief of this disease.

The cause of peritonsillar abscess has been much discussed, some authorities asserting that it is due to suppuration in the loose connective tissue around the tonsil which starts *de novo* as does any boil elsewhere. Others believe that it is a symptom of the rheumatic diathesis, while still others think, as does the author, that it results from infection by the germs of acute tonsillitis. Whichever of these views be correct, the observation that it almost always is met with in conjunction with some tonsillar obstruction to the supratonsillar fossa will, I am sure, be granted by most specialists. The anatomy of the parts with reference to the pathology of peritonsillar abscess, has not been very carefully studied, but the consensus of opinion appears to be that it arises in the cellular tissue above, behind or in front of the tonsil. Chiari, however, believes that the abscess is formed in the pharyngomaxillary space, which is bounded by the tonsil, the internal pterygoid muscle, and the palatine arches (McBride). Injection of this space on the cadaver, as was done two years ago by the writer, certainly gives one the appearance of the ordinary peritonsillar abscess. This space also contains the great vessels, but is separated into two portions, an anterior and a posterior, by the stylopharyngeus muscle and its fascia. In the former Chiari believes that the pus forms, and being unable to force its way backward on account of the resistance offered by the stylopharyngeus, pushes forward and inward until it makes its exit through the pillars usually in front of or behind the tonsil.

This theory certainly seems to have some points in its favor, among which may be cited the difficulty or impossibility of obtaining pus without a very deep puncture in many cases, and the curious fact that peritonsillar abscess even when opened successfully through the anterior pillar will very often close, to open elsewhere later. If we assume the pharyngomaxillary space to be the seat of abscess, we have the constrictor of the pharynx with almost horizontal fibres and the anterior pillar, or palatoglossus, with nearly vertical fibres crossing it and forming a barrier through which pus must pass in order to make its exit through the

[1] Read before the Clinical Section of the Suffolk District Medical Society, December 19, 1900.

anterior pillar. If we puncture through these two muscles, whose fibres cross one another, as we should do in lancing a peritonsillar through the anterior pillar, our wound, in order to remain patent, must have its openings in the same relation to one another as they were at the time of making the incision. With a patient gagging and straining this relation is apt to be lost and the incision no longer remains open. That many punctures made through the anterior pillar do close, the period of relief being postponed some hours or days, I believe all would agree, although some cases have been seen to discharge continuously through the opening thus made. It has seemed to me that where pus had forced its way nearly to the surface of the anterior pillar so as to have agglutinated the various layers, we may expect success from puncture in this locality. Whether suppuration occurs in the pharyngomaxillary fossa or in the tissue around the tonsil is still an open question. Examination of pus from peritonsillar abscess yields the bacteria common to pus in other localities, namely, various forms of streptococci and sometimes a few pneumococci.

Diagnosis. — The diagnosis of peritonsillar abscess is usually easy after the first forty-eight hours. the familiar swelling of the soft palate and its one-sided appearance making a picture which it is not easy to mistake. The pain, short duration and violent inflammatory appearances are very characteristic. The cases which most require care in diagnosis are those in which the swelling has lasted some weeks and which are neither very much inflamed nor very painful. The diagnosis between sarcoma of the peritonsillar tissue, syphilis and subacute peritonsillar abscess is sometimes difficult, and a careful history is here of great value, especially as to length of time, previous attacks, pain or signs of lesions or metastases elsewhere. Peritonsillar inflammation is not accompanied by ulceration in any portion of the mouth or tonsil, while gummata or sarcoma are apt to be so associated. Usually in chronic peritonsillar swelling some discharge of pus may be found on careful examination, while puncture, if other means fail, will give us a clue to the diagnosis.

Symptoms. — The first symptom is usually a severe chill, followed by fever and headache and by pain referred to one side of the throat only. The pain is of a dull, throbbing character at first, but as the swelling increases it becomes sharper and more excruciating. Pain in the ear is a prominent feature, due probably to traction or pressure on the Eustachian orifice by the swollen tissues. Interference with respiration in adults is not usually so marked as in children, but deglutition is so painful that the patient often cannot even swallow his saliva, but allows it to run from his mouth rather than make the effort. In bilateral peritonsillar abscess the ordinary appearance is of course changed, as well as the symptoms of pain and throbbing on one side. The palate being evenly swollen presents no contrast; the uvula hangs in the middle line instead of being pushed away from the affected side. But the tonsils when carefully examined show no enlargement beyond the pillars, which ought to throw them into apposition with each other, and the pillars themselves are nearer the median line of the pharynx than usual. In my experience the bilateral condition is a rare one, and even where both sides are affected, one side tends to follow the other rather than to become inflamed at the same time.

Prognosis. — Cases of untreated peritonsillar abscess usually subside through rupture, which commonly occurs between the the pillars of the fauces. Their duration is about seven days, although I have records of cases where four days was the average length of time and others where two weeks was the usual one. It may be remarked here that the history of the duration of previous attacks is important in ascertaining the effect of treatment, for if we cannot succeed in aborting an attack in less time than nature usually does it, we gain nothing by operation. Usually the disease is self limited, but several cases are on record where the pus made its way into the posterior portion of the pharyngomaxillary fossa, and so into the mediastinum with a fatal result. Thrombosis of the large veins and pyemia have also resulted.

Treatment. — To abort an attack after peritonsillar swelling has appeared is, in my experience, impossible. When the patient feels an attack coming on, resort may be had to quinine, opium and diaphoresis on the same principle as we adopt to check a cold. Bosworth believes in the salicylates and other antirheumatic remedies, and gives large doses of 13 to 15 grains an hour of the salicylate of soda with a drop of Fleming's tincture of aconite until the physiological effects of numbness and tingling of the finger tips caused by the latter drug begin to appear, when its use is permanently discontinued. Of course drugs like aconite and the salicylates must be administered with great care and under very watchful supervision. Knox, cited by the same author, found this procedure efficacious in 40 out of 50 cases. I have tried the salicylates with much less good fortune, and believe that where swelling of the peritonsillar tissue exists only the knife can give any relief, while the salicylates on account of their depressing influence contribute to the exhaustion which follows this very debilitating disease. When we find the swelling increasing our efforts should be directed to bringing the abscess to a head as speedily as possible. For this purpose hot-water gargles repeated every half hour are as satisfactory as anything which we have used. But it is after the swelling is well under way, or three or four days following the onset of the disease, that we may do our best work in checking the abscess. At this point the general surgeon often lances the anterior pillar without obtaining pus, and even when he is fortunate enough to find it, the wound closes at once and the symptoms within a few hours recur with the same severity as before. In general, one may say that a deep puncture through the anterior pillar seldom remains open, while a shallow one not infrequently does so.

While the swelling is moderate the physician should study the condition of the anterior and posterior pillars of the tonsil with great care. The posterior pillar being behind, the inflamed mass of tonsil and anterior pillar often escapes observation. If swelling of the posterior pillar behind the crypts of the tonsil is present, we should examine it with a probe to assure ourselves whether it fluctuates or is simply swollen and edematous. If fluctuation can be obtained, a puncture, which with the application of cocaine is practically painless, should be made, and a cure results with very little discomfort to the patient. If the posterior pillar be normal in appearance, a careful examination of the anterior will often show a slight bulging at its junction with the tonsils and a very little dissec-

tion under cocaine in order to separate tonsil and pillar will give pus, which with a good-sized opening will discharge continuously. Should there be no signs of pus in either pillar the supratonsillar fossa must be sought as the most probable seat of the suppuration.

Here care must be used in the use of the knife, since the great vessels lie in the pharyngomaxillary space, and instances of death resulting from injuring them in this way are on record. The great vessels lie, however, in a plane posterior to one drawn through the posterior pillars, so that if we avoid penetrating the posterior pillar in the interior of the abscess we are safe from this danger. The arterial supply of the tonsil is derived from the dorsalis linguæ, the ascending palatine, the tonsillar, the ascending pharyngeal and the descending palatine arteries. Of these the only one of importance is the tonsillar, which is a branch of the facial. All these arteries enter the tonsil from its base, and we may avoid them by passing between the tonsil and pillar. If, therefore, we fail to find pus in either anterior or posterior pillar, we should enter the supratonsillar fossa, taking care not to penetrate further backwards than the posterior pillar. Should pus be obtained a wider opening through the tonsil may be secured. Cocaine should be used, either submucously or by application to the mucous membrane, in order to make the procedure as painless as possible.

RETROPHARYNGEAL ABSCESS IN THE ADULT.[1]

BY J. L. GOODALE, M.D., BOSTON.

THE case of retropharyngeal abscess which I have to report is of especial interest for two reasons, (1) because of the age of the patient, and (2) because of the demonstration of tubercle bacilli in the pus.

I shall not go into a general account of retropharyngeal abscess, but will simply enumerate certain salient points, before describing my own case: (1) It is quite an exceptional disease after the age of four. In regard to classification, Bokay distinguishes (1) idiopathic abscesses; (2) secondary abscesses from disease of the cervical vertebræ or from the irrigation of pus from a superficial cervical adenitis; (3) septic abscesses; (4) abscesses from trauma. Bokay suggests giving up the old term "idiopathic" and calling the abscesses coming under this head "retropharyngeal abscesses" from retropharyngeal lymphadenitis; thus separating them from the secondary abscesses, metastatic and traumatic, and permitting at the same time definite etiological knowledge. Bacterial invasion of the lymph glands behind the posterior pharyngeal wall will produce pathological changes in these structures similar to those occurring in other lymphoid tissues, giving rise, however, in view of their localization, to characteristic clinical symptoms.

Bacteriological examinations of the pus were made in a large number of cases of acute abscesses by Koplik, of New York, who found in every case streptococci. So far as my search in the literature goes, no case has been reported of tubercular retropharyngeal lymphadenitis in the absence of caries of the spine. Shurley, in his recent book, says that the statement of some observers that acute retropharyngeal abscess in some cases is tuberculous is unsupported by investigations.

The following case came under my observation June 14, 1900, in the throat clinic at the Massachusetts General Hospital in the service of Dr. Clark. The patient was a waiter, eighteen years old. He gave the history of the development four weeks ago, while in his usual good health, of swelling in the back of his throat, which had slowly increased in size up to the present time, unaccompanied by fever or other disturbances than those due to difficulty in swallowing. The patient was fairly well nourished, moderately pale, but not cachectic. Examination of the throat showed a bulging forward of the whole posterior pharyngeal wall, due to the fluctuant swelling extending downward from the level of the soft palate. The lower limit was not visible and no attempt was made to determine it by palpation. The mucous membrane covering the swelling was essentially normal in appearance. There was no evidence of disease of the cervical vertebræ. A free incision was made with a bistoury into the swelling and about four ounces of pus evacuated. The knife immediately after withdrawal from the abscess was carried to Dr. Wright in the pathological laboratory. Two syringefuls of a bouillon suspension of the pus were injected into a guinea pig. On August 4th, then seven weeks after the inoculation, the guinea pig was killed and showed all the characteristic lesions of tuberculosis. With regard to the subsequent condition of the patient, immediate relief followed the evacuation of the abscess. I have recently written, requesting him to come for examination. Although he has not reported in person, he wrote me November 14th that his throat had been in good condition since the operation and he was otherwise in good general health.

This seems unquestionably a case of tubercular retropharyngeal lymphadenitis, ending in suppuration. No point of entrance for the infection was found.

[1] Read before the Clinical Section of the Suffolk District Medical Society, December 19, 1900.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

CONGENITAL DISLOCATION OF THE HIP.

LORENZ, in a valuable book published in 1900, in the treatment of congenital hip dislocation, considers it as proved that the chief obstacle to reduction lies in the soft parts. The obstruction offered by the shortened muscles, fasciæ and tendons can be overcome by mechanical means, but the obstacle offered by the capsule itself is the chief one to be considered in the reposition, and the most important of all the obstacles is a narrow capsular isthmus. The ligamentum teres offers but little obstruction. He considers that the rudimentary acetabulum is not large enough to retain the head of the femur and for this reason the limb must be held for some time in an abducted position after correction, in order that the acetabulum may be moulded into the proper shape. It is necessary that the limb, after correction, should be held in what he calls the primary position, in order to keep the head next to the acetabulum.

But besides this, and more important, is what he calls the secondary position, which involves the throwing the weight of the body upon the head of the femur, by allowing the patient to walk in a required position which brings a strain upon the head of the femur and the rudimentary acetabulum. He considers that the bloodless operation is best performed between the ages of ten and three in single dislocation. The cure cannot be said to be established except after a thorough after treatment. In cases which are too old for reduction the writer recommends a combination of the bloody and unbloody method; that is, the reposition of the head by means of operation without deepening of the acetabulum, and the after treatment according to the principles of the bloodless method. He thinks that preparatory extension is unnecessary in young children; in older children this can be supplemented by subcutaneous tenotomy of the long muscles. In young children the reduction of the dislocation can take place by means of the hand without the help of apparatus, through extension and abduction of the flexed and inward twisted femur. In the more severe cases it is necessary to stretch the limb by using a wedge-shaped padded formed cushion under the trochanter as a fulcrum. The thigh is abducted to 90° gradually by lever movement and the head brought into place. Great care must be used in the employment of this maneuvre. After reduction the limb is best kept in a slightly abducted position, with the limb turned outward. The latter position is desirable in order, by pressure, to increase the strength of the anterior fibrous walls of the capsule, and to present a flat position forward. This apparatus should be worn for four or five months. The possibility of a reluxation backwards may be considered as avoided. When a middle position with flexion and abduction of the secondary position is reached the limb is placed in this position and the apparatus worn for five or six months, the apparatus consisting of a plaster bandage. In the first stage hyperextension is desirable. Active gymnastics are necessary in addition to the correction. In double dislocation the reduction of both hips should be done at the same time in young children.

Lorenz is of the opinion that, for a cure, treatment by means of fixation apparatus is necessary for two years after the reposition.

Kirmisson[1] reviews the subject as a whole. Lorenz earlier claimed his method (the bloodless reduction) as a radical one, but in 1898 recognized that in many cases as shown by the x-ray, his results, though good, were not a true reduction, but a transposition of the femoral head forward.

The list of complications (of all bloodless methods) is large. It includes many fractures of the femoral neck, epiphyseal separations, one fracture of the pubes, a gangrene of the thigh due to obliteration of the femoral vessels by the forward displaced head, and several paralyses of various sciatic branches, fortunately temporary.

As to results of the bloodless method, Lorenz has failed 15 times in 360 cases, and of 135 cases the radiographs of only 79 show anatomically satisfactory results. Hoffa has employed Lorenz's method in 64 cases (22 of these double). In all these the reduction has been successful, but of the 42 unilateral cases only 4 showed permanent reduction. In many others there was simply a transposition forward. In the bilateral cases the results even less good; never a permanent reduction of both hips; in 4 cases the reduction permanent on one side, transposition on the other; 3 times complete relapse of both; 15 times transposition on both sides with good results. Nineteen times Hoffa has tried Schede's methods. Of 13 unilateral cases he had 1 reluxation; 12 transpositions up and forward. In 6 bilaterals, 1 deluxation and 5 transpositions. Mikulicz's methods Hoffa tried 7 times, 4 cures, 3 improved. Hoffa treated with his own method 17 unilateral, with 9 cures and 8 transpositions; 3 double, 1 cure; 2 transpositions.

Petersen reports 161 cases from Schede's clinic (70 of them bilateral); real permanent reduction in 8 unilateral, in 2 double. Schede and Petersen have come back to Paci's point of view and hope usually only for amelioration — for transposition. Mikulicz, Heusner, Lange and Kummel have become skeptical of results. As things stand, the bloodless method is advisable hardly after ten years; after this, open operation (which has been too much given up). For much later cases subtrochanteric osteotomy often advisable and serviceable.

Kirmisson finishes by reviewing the benefits of fixation following traction, followed for several years and keeping the head forward near the normal position. The displacement is a gradual one favored by motion at the hip and greatly retarded by fixation. Kirmisson is inclined rather to regard forcible reduction as a last resort than as desirable.

Hoffa's[2] technique includes extension of leg, counter extension from the perineum; incision in front and above trochanter down and back, about 6 centimetres long; the gluteus maximus is drawn upward; the capsule incised with the limbs abducted; the anterior face of the capsule split to the pelvic insertion; dislocate the head; gouge out the new acetabulum; reduce; the wound is not sutured. Hoffa did the open operation 248 times; 10 deaths, *none* in the last 132. Concludes, always first try the bloodless reduction, if this fails then open operation; most favorable age is three to eight years. After treatment of massage and gymnastics is very important.

Broca and Monchet[3] have treated 38 cases of unilateral and 24 bilateral hip luxations at ages from twenty months to fourteen years. All cases treated exactly according to Lorenz's present methods. All cases above ten were failures. Of the 62 cases only 2 proved by the radiograph to be actual reductions. Almost always a transposition of the head forward toward the anterior spine. As to results 15 are called excellent, 25 satisfactory.

Doyen[4] thinks radical cure only by the open operation. Has devised a special borer to form the acetabulum — this he thinks the most important part of the operation. The actual reduction may need his special retraction hook to replace the head. After operation he abducts and rotates inward. May be necessary to correct rotation later by *supracondyloid* osteotomy of the femur.

POTT'S DISEASE.

Bradford[5] read a report on the subject defining somewhat closely the class of cases where any forcible

[1] Rev. d'orth., 1900, p. 289.

[2] Thirteenth International Congress, 1900.

[3] Loc. cit.

[4] Loc. cit.

[5] Loc. cit.

reduction is allowable and defining the aims of retentive and corrective treatment.

Rédard and Besançon have used forcible correction in selected cases with good results and apparent osseus repair in some, about one-quarter in half of the cases a fairly satisfactory result; in the remaining quarter the results were rather poor.

Broca and Monchet have forcibly reduced 40 cases. They do not believe in operating on cervical cases or cases with abscess or with lung complications. In 12 of the 40 correction not actually effected. Are ready to proscribe the operation in all but early cases. Many cases relapsed.

Ducroque [6] states that in correction of older deformities it is useless to attempt even if correction is possible. In 20 cases operated on two to four years ago the deformity has entirely relapsed. The *rédressement* has hardly any indications save in paraplegia.

Phocas has given up forcible correction for simple extension under chloroform. In 13 cases so treated 6 could not be reduced, 2 relapsed very early, 2 died, 6 had abscesses, only 1 remained definitely corrected. As a result is ready to give up *rédressement* in all its forms for immobilization.

Calot [7] has nothing to say for forcible reduction today, but much of dorsal decubitus in plaster apparatus and of correction by suspension, especially for paraplegic cases.

Chipault advocates suspension by the feet and application of plasters. Further correction than this he would confine to paraplegic cases.

Piéchaud definitely condems forcible correction. He has tried it and disbelieves in it and has come back to the use of the dorsal decubitus.

Menard and Guibal [8] have experimented on spines to produce experimental kyphosis in imitation of that of Pott's disease. Their results are best studied from the figures with which the article is richly supplied, but in general the experiments showed that, (1) in the cervical region destruction of the vertebral bodies is not accompanied by a *proportionate* kyphosis; this is owing to the support of the laminæ and transverse processes which come in contact — there is, however, a *total* shortening of the spine at this point, estimated at about one-half, a shortening without much definite kyphosis; (2) in the dorsal region there is no definite hindrance to inflexion except that of the ribs. In fine, the degree of kyphosis here *is* proportionate to the destruction of the vertebral bodies; (3) in the lumbar region the results are intermediate; there is some shortening (one-quarter the height). Up to a certain point the inflexion corresponds to the destruction, but less accurately than in the dorsal region.

Bouquet [9] reports a case of Pott's disease with abscess in which the dorsal decubitus was impossible from pain. The child was put on the belly, with traction from the legs and from a short corset. This kept up for four months and the abscesses healed. On getting up the child, which had previously had a marked kyphosis and a lateral deviation, was practically perfectly straight, and remained so for four months (apparently without apparatus — none is mentioned). Author thinks the child's effort to raise the head (it was a child of eleven years), had much to do with the correction.

[6] Thirteenth International Congress, 1900.
[7] Loc. cit.
[8] Rev. d'orth., January, 1900, pp. 35, 125.
[9] Loc. cit., 1900, p. 217.

ALTERATION OF THE INTERNAL ORGANS IN SCOLIOSIS AND KYPHOSIS.

Bachmann [10] has thoroughly investigated this subject. He has collected a scattered literature of the case. Out of 276 cases there was a total of 666 lesions of the organs of the circulation, with 164 diseases of the heart muscle and valvular lesion. A transverse position of the heart and an unusual position of the thoracic and abdominal organs, with the separation of the esophagus from the aorta, was noted in a number of cases. The causes of death in kyphoscoliosis is chiefly heart failure, and congestive bronchitis with hypostatic pneumonia and hypertrophy of the heart is common. Tuberculosis of the lung is not common in the severer grades of kyphoscoliosis.

Satterthwaite [11] has studied the displacements of the the heart in scoliosis. He is not disposed to exaggerate the importance of these, but has found displacements present, and moreover has seen prompt amelioration of cardiovascular symptoms as a result of amelioration of the deformity without other treatment.

Counsel's treatment by exercises was modelled on Roth's system.

ORTHOPEDIC CORSETS IN SCOLIOSIS.

Hussey,[12] in an interesting and thorough article on the disadvantages of the use of the corset in lateral curvature, claims that any corset is a disadvantage and increases the tendency to rotation and side deviation. This view is opposed by Vulpius, and by Schanz.[13]

Schanz [14] claims that the unsatisfactory nature of the treatment of lateral curvature lies in the lack of thoroughness in the method of treatment, and advises the forcible correction in severe cases, this correction treatment being carried out for four weeks. After this gymnastics and massage should be carefully carried out.

ACUTE OSTEOMYELITIS IN THE REGION OF THE HIP.

Bruns and Honsell [15] say this affection is not common, and the writers have collected 106 cases in the last forty years of the clinic in contrast with 500 cases which have been collected of osteomyelitis of the lower end of the femur. Of these, 12 patients were between one and five, 25 between five and ten, 43 between ten and fifteen, 23 between fifteen and twenty, 2 between twenty and twenty-five, and 1 twenty-six years of age. Males are more frequently affected than females. The affection may begin, and usually does, in the upper portion of the diaphysis. In some cases it is in the upper epiphysis and occasionally may be in the acetabulum. There is a tendency for the cartilage to protect invasion of the joint, but when the upper epiphysis is affected in the severer cases the cartilage may be perforated. This is frequently the case where the acetabulum is affected. More common is the affection of the upper end of the diaphysis, with a separation of the epiphysis of the head of the femur. The affection may, and usually does, cause suppuration and anchylosis. In the severer cases it causes subluxation; in many cases, however, this is not the case. There is less likeli-

[10] Bibliotheca medica, Abtheilung D. 1, H. 4.
[11] New York Medical Journal, September 30, 1899.
[12] Zeitschr. f. orth. Chir., 1900, p. 202.
[13] Arch. f. klin. Chir., Bd. lxi, H. 1.
[14] Loc. cit., H. 4.
[15] Beitr. zur klin. Chir., 1899, p. 41.

hood of shortening after this affection than after the tubercular affection, except in cases of spontaneous luxation. The onset is sudden and the patient is in a dangerous condition at first. After the onset the patient usually comes into a better condition, and improvement follows. The diagnosis between the osteomyelitic affection and the tubercular affection is usually easy, as the invasion of the former is usually acute. In the subacute forms, however, the diagnosis is not easy and must rest largely upon the bacteriological investigation.

Owen[16] gives a special article on osteomyelitis of the femoral neck. It is most common before twenty years. The symptoms are those of osteomyelitis in general, with addition of flexion and adduction of the hip. The prognosis depends on early operation; may be rapidly fatal. Four cases reported. One fatal, died of sepsis after operation. One recovered after long treatment. Two were resected with good functional result.

TUBERCULAR OSTEOMYELITIS OF THE SHAFT OF THE LONG BONE.

Kuttner[17] found only 6 cases of this affection among over 2,000. They are of two classes, the primary affections and the secondary, that is to say, those which extend from an inflamed joint. The primary are extremely rare; the anatomical appearance is varied, and consists either of circumscribed focus or a diffused process extending into the whole of the medullary cavity of the shaft. Either a tubercular bone abscess is formed or very rarely a condition like the spina ventosa of the short bones. The affection may extend to the epiphysis and joints. It usually attacks young children between the ages of two and six years, who as a rule are affected by multiple tuberculosis. A diagnosis is difficult on account of the resemblance to the process following acute osteomyelitis.

The secondary osteomyelitis is almost exclusively confined to the shoulder. In Bruns's clinic the cases were chiefly in adults, but the affection can also occur in children. Unlike ordinary osteomyelitis, the cartilage is not a complete protection from the invasion of the inflammatory process. The affection is a destructive one.

Ollier[18] adds one to his series of late autopsies, showing end results after subperiosteal elbow resection. This case is of especial interest in that it was performed on an adult for extensive, destructive tubercular disease and that during the eighteen years that had elapsed between operation and autopsy the patient had done hard and exhausting work as a vinedresser. The range of movement increased with increasing strength till fourteen years later flexion and extension were practically normal, supination two-thirds normal, pronation normal, the strength of the arm in extension over three-fourths that of the sound side. Seventeen years after the operation he had lost a few degrees of extension, but the joint was still firm and strong. The patient died eighteen years after the operation of a generalized sarcoma in the prevertebral region, primary in the clavicle or ribs apparently.

The autopsy showed extremely good reproduction of the olecranon, and of the V-shaped humeral end into which the forearm fitted. There was no joint cavity, but lacunæ in the uniting fibrous tissue and some formation of fibrocartilaginous plates, especially in the sigmoid cavity.

The case is interesting from its permanence so far as disease was concerned, from the remarkable return of motion with, nevertheless, a firm joint and a notable return of muscular function, even in the triceps.

Most interesting of all perhaps is the light it throws on the conditions necessary for a permanently mobile joint in this form of resection. For seventeen years the patient had subjected his arm to severe, often to excessive, use and the joint had remained supple; six months or less before death he had been unable to work, and in this time the range of extension had decreased from 70° to 25°. So here, as with resections of the older types, there is no joint formed, but a fibrous mass tending always to recontract unless forcibly prevented by use. The case cited shows how perfect may be the result so long, and only so long, as use is constant.

Hibbs[19] has studied the atrophic bone shortening in cases of hip-joint disease, and especially the tibial shortening. Fifty cases were measured. The shortening in both femur and tibia, about the same usually, may be over 3 centimetres each. Exists in 60% of the cases.

RESECTIONS IN SUPPURATIVE COXITIS.

Nelaton[20] reports in detail 2 cases of resection in a boy of fifteen and a woman of twenty-six years. The first, after two years of treatment with poor result, was subjected to resection. Persistent fistula; anchylosis not yet complete. Walks, but with a limp. The second case treated a year and a half with fair result — wound closed after five months. Shortening 3 centimetres. No anchylosis. The cases do not present a sufficiently long interval after operation to warrant so favorable a set of conclusions as the author draws.

The chief interest of the article is that the author definitely concludes that the best result to be hoped for in operation of cases even comparatively early is anchylosis in good position. Late excision gives results preferable to conservative treatment, but less good than the desired anchylosis.

TUBERCULAR OSTITIS OF PATELLA.

Gross[21] reports 4 cases. Age as often above as below twenty years. Symptoms are spontaneous pains day or night, pain on pressure, unevenness of surface of bone, movements little interfered with unless joint is invaded. The pathognomonic symptom is a prepatellar abscess of slow formation, much less mobile than the bursa. Puncture will settle all doubts. The treatment is removal of the disease, with or without resection of the patella, or opening the joint as occasion demands.

He considers 30 cases of primary tuberculosis of pate la gathered from the literature.

(To be continued.)

Arrested for Expectoration in Street Car. — A man has been arrested and held in New York City for spitting in a street car.

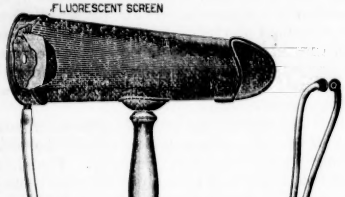
[16] Transactions of the Medico-Chirurgical Society of London, 1899, vol. lxxxii, p. 66.
[17] Beitr zur klin. Chir., 1899, Bd. xxiv, S. 449.
[18] Rev. d'orth., January, 1900.
[19] New York Medical Journal, December 16, 1899, p. 876.
[20] Rev. d'orth., January, 1900, p. 27.
[21] Rev. méd. de la Suisse Rom., March 20, 1900, p. 109.

New Instrument.

A SMALLER SEEHEAR.

BY WILLIAM ROLLINS, BOSTON.

IN a larger form this instrument was described in the *Electrical Review* for February 8, 1899, and in other journals. The instrument contained two principles new in stethoscopes, one a sound chamber, the other a fluorescent screen in connection with such a sound chamber. The former has since been adopted in one of the stethoscopes in common use. The latter awaits recognition. There is an advantage in using both eyes and ears in studying the interior of



THE SEEHEAR.

the chest, therefore I illustrate here a simple form of the instrument. As I have designed x-light apparatus capable of yielding a powerful x-light under control in quality and intensity, the use of the instrument is not difficult. It is only necessary to use a tube of low resistance, varying the amount of x-light by regulating the current in the primary and the position of the secondary in the space of ether strain, to make the heart or lungs clearly visible to an untrained eye.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, Wednesday, December 19, 1900, DR. V. Y. BOWDITCH in the chair.

DR. J. L. GOODALE read a paper entitled

RETROPHARYNGEAL ABSCESS IN THE ADULT.[1]

DR. F. C. COBB read a paper entitled

PERITONSILLAR ABSCESS.[2]

[1] See page 108 of the Journal.
[2] See page 106 of the Journal.

DR. FARLOW: I have seen several cases of retropharyngeal abscess in the adult, but never of tubercular origin unless there was tuberculosis of the spine. Several years ago I was called to see a lady of about fifty, who complained of some soreness of the throat and difficulty in swallowing for a few days. I was much surprised to find a marked bulging of the posterior pharyngeal wall, with elastic, fluctuating feeling to the finger. There was no evidence of tubercular or specific disease and the cause of the trouble was not clear. There was no pulsation, no neoplasm, and it seemed to be a very unusual case of non-tubercular retropharyngeal abscess in the adult. I proposed to make an incision, but was not allowed to do so, and the case passed into other hands. I do not know the outcome.

There is a condition not very infrequently met with which, at first glance, might lead one to think of retropharyngeal abscess, and that is an asymmetrical position of the pharynx. If the pharynx is not directly in front of the vertebral column, the projecting vertebræ may give the impression of an inflammatory bulging, until the examining finger shows that the projecting side of the pharynx is hard and bony.

As regards peritonsillar abscess, I quite agree with Dr. Cobb in not considering a rheumatic origin well substantiated. I am always in the habit of looking about the tonsil and exploring the crypts, and especially the supratonsillar fossa, for some possible seat of infection. I have seen 2 cases recently in which the inflammation was behind the posterior pillar, a most unpleasant region in which to make the incision, especially when one bears in mind the possibility of meeting one of the large, abnormal ascending pharyngeal arteries, which are occasionally found in this situation. According to Dr. Moritz Schmidt, the abscess points in the anterior pillar in 98% of the cases, and in the posterior pillar in 2%. In order to prevent an early closure of the opening and to ensure a better evacuation of the pus, I pass a probe in various directions so as to open up the various pockets of pus, break the trabeculæ, etc., and then dilate the opening with a pair of strong forceps. This leaves a gaping wound which is much more likely to stay open than where only an incision is made. This is scarcely applicable, however, when the incision is in the posterior pillar.

A great difficulty in the treatment of many of these cases is the inability of the patient to open his mouth. I have seen 2 cases so severe that chloroform was given to get the mouth open, not only to make the diagnosis, but also to carry out the treatment. Some of the distress is caused by secretion behind the posterior pillar which is tenacious and hard for the patient to expectorate. A warm, alkaline solution sprayed gently through the nose helps the patient to rid himself of this mucus. A hot poultice to the neck is very soothing when pus is forming.

DR. KNIGHT: In regard to the first paper — "Retropharyngeal Abscess in the Adult" — I must say I have never seen what has been considered an idiopathic case. All the cases I have seen have been those in connection with disease of the vertebræ. The general practitioner is liable to mistake not only a congenital deformity of the vertebræ for an abscess, but also what may be the natural prominence. I have had a good many cases brought to me by practi-

tioners, thinking that they had something abnormal, possibly an abscess, which was nothing but the ordinary prominence of the vertebræ in the centre of the pharynx just behind the uvula.

In regard to the peritonsillar cases it seems to me very unfortunate that even in many modern textbooks on disease of the throat, even by specialists, they are still grouped as cases of tonsillitis, and the two topics more or less treated together. I think it is possible that infection, as Dr. Farlow states, may sometimes come from the tonsil, but peritonsillar abscess is not usually associated with acute tonsillitis, which has a clinical history of its own. Certainly in many cases the tonsils appear healthy.[3] Whether it is connected with any diathesis or not, rheumatic or other, is of course still a question. A very large number of observations made at different periods by all kinds of medical men seem rather to confirm this idea, and it is one's experience as he looks back that he sometimes finds an association between this condition and rheumatic conditions. I cannot think it is any evidence against its rheumatic nature that when suppuration has occurred and we have a peritonsillar abscess, antirheumatic treatment, so called, does not affect it. You would hardly expect it to, but whether in those patients who are subject to peritonsillar abscess we do not sometimes abort the thing is a question. Certainly where a patient has an attack of this kind once or twice in the year, and by the use of salicylates or bicarbonate of soda in huge doses, the attack seems to be avoided a good many times, one cannot help feeling that possibly diathesis has something to do with the condition, but the question of abortion of this, as of other diseases, of aborting pneumonia and aborting pleurisy, is always very doubtful, because you do not know what you might have had without treatment. If the condition is sure, if you are sure of an abscess, of course nothing is going to abort it.

In regard to the treatment of these cases, I think on the whole, perhaps, a patient is made more comfortable if he has the old antiphlogistic treatment in the beginning. Of course, nowadays, it is not customary to vomit and purge, etc., but purging and aconite, as suggested, do seem to me to make the patient more comfortable. Locally the use of hot water — particularly hot alkaline water — gives the greatest comfort in the removal of mucus from the patient's throat.

In regard to operation, another point comes up. Of course, I suppose everybody has incised a good many times without getting any pus. The question is whether that relieves the patient. It seems in the beginning to relieve. The bleeding seems to give some comfort, and it has been customary with some men to make a good many punctures for the sake of the relief. I think on the whole the patient is more uncomfortable in the end, with three or four punctures and the cicatrices, than if let alone, that is, if no pus is reached.

The question of prevention of recurrent attacks is a very important one. Of course all the ordinary hygienic means are to be established, but locally many physicians have claimed that excision of the tonsil lessens the chance of recurrence. I cannot help thinking that this idea originates largely in the confusion which I have spoken of between tonsillitis and peritonsillar abscess. Of course if the tonsils are very large they naturally should be excised, but if not large, whether excising the tonsil would make any difference in the origin of the peritonsillar abscess is, I think, doubtful as regards most cases. There is no question but that when a patient is subject to tonsillitis with swelling of the gland, even when the tonsil is small, an excision practised on the tonsil will prevent future attacks, but I doubt whether it would have anything to do with the peritonsillar cases except such as might be infected from the tonsil, as Dr. Farlow suggests.

The proclivity to the disease seems to me to lie in the peritonsillar connective tissue, and that while infection is not necessary from the tonsil or through it, it is more likely to come through than directly from it.[4]

DR. LANGMAID: It is rather singular that it remains for Dr. Goodale to give the first instance of retropharyngeal abscess without caries of the spine in which tubercle bacilli were found, but it seems to me that they might have been found in many other cases had one been as careful as Dr. Goodale was to examine the pus which came from the abscess. That formerly was almost never done and I imagine is rarely done now. With your permission, Mr. Chairman, I will read some notes of a case that comes under one of the headings that Dr. Goodale spoke of, namely, septic retropharyngeal abscess in an adult. It is so rare, at least in my experience, that I was very much interested in the case, and I thought it had some bearing upon the classification which Dr. Goodale read.

On July 10, 1900, Mrs. R., a young married woman, was seen in consultation. She had a history of previous attacks of tonsillar abscess. Had been ill with amygdalitis for one week. Both tonsils have been punctured, but no discharge of pus followed. The wounds on both tonsils are covered with a grayish-white membrane. A small patch of similar membrane is seen on the tip of the uvula. A culture taken during the first days of illness did not reveal the presence of diphtheritic bacilli. There is an external swelling on the right side of the neck. Temperature 103°, pulse 100. A poultice to the swelling of the neck and a gargle of permanganate of potash were advised. A culture from the membrane showed staphylococcus, but no Klebs-Löffler bacilli.

On July 11th, temperature 100⅗°; wounds much cleaner, but external swelling greater.

On July 16th I was again asked to see the patient. The external swelling had increased. The right tonsil was pushed forward. The wounds of previous incision had healed and there was no membrane. There was an extensive fluctuating swelling on the posterior wall of the pharynx, confined to the right side. Free incision into the swelling gave exit to a large amount of pus, which continued to flow for forty-eight hours. Complete recovery followed. This post-pharyngeal abscess was caused, I have no doubt, by infection from the puncture of the tonsil.

It seemed to me when I heard Dr. Goodale's classification that that came very well under the heading of a septic retropharyngeal abscess.

[3] Of course, as Dr. Goodale suggests, infection may take place through a healthy tonsil.

[4] The day after this occasion a lady of twenty-four years came into my office, who had formerly been very subject to peritonsillar abscess. Her tonsils had been very large and they were thoroughly excised last winter in another city (the remaining tonsillar tissue was not dug out), and the following spring she had the first peritonsillar abscess in six years. This experience recalls Swain's suggestion that the function of the faucial tonsil may be to destroy pathogenic germs entering the mouth with the ingesta.

Everything has been said, so far as I know, with regard to the causation of retropharyngeal abscess, but it is possible, it seems to me, that a lesson may be learned from this case with regard to early puncture of the tonsil. For some years I have refused to puncture the tonsil in the first days of amygdalitis. The patient demands it, and the tendency is to put a knife in somewhere and draw a little blood. Temporarily the swelling is decreased and the patient feels better for a time, but it is possible that wounds so made may become infected. That it is rare we know, but it is possible. It seems to me, so far as my own experience goes, it is not very common that one needs to explore very much to get pus. When it is time, ordinarily, some fluctuating point is found and the abscess can be evacuated, but I can imagine cases in which it would be allowable to go upon dangerous ground to relieve the very great swelling, dyspnea or apnea which might ensue.

Dr. Knight has spoken about the recurrence of tonsillitis. It has always been to me a very singular thing how regularly some people have an inflammation of the tonsil, even more than that, a peritonsillar abscess, and is it not for that reason perhaps that a dyscrasia is suspected? For a good many years, in those who had recurring attacks at about the same season of the year, I have tried to do what I could in the way of advice that the patient might avoid the attack by means of treatment of some condition which he recognized as preceding or accompanying these attacks. Whether they have or not it is impossible to say, my experience is so small.

DR. COOLIDGE: Retropharyngeal abscess in the adult is certainly a comparatively rare condition. I do not think I have seen a case for four or five years in a large out-patient clinic. I think that what Dr. Knight said about the lack of good description of peritonsillar abscess in our textbooks is very noticeable. There should be, but there is not in these books a detailed description of the anatomy of the tonsillar region. The anatomy is quite complicated and almost nothing is said about it. Several years ago His described the supratonsillar fossa and also the other structures in connection with it, especially the plica tonsillaris, a fold of membrane which can be demonstrated in almost every throat in which the tonsils are enlarged. This plica varies very much indeed in different throats. Sometimes it is very large and includes a large part of the tonsil as if in a sling, so that, although the tonsils are large, the crypts are seen only over a small area. In other cases it is small. Three or four years ago Paterson and, I think, Killian called attention to this supratonsillar fossa as a possible source of a good many morbid conditions of the tonsils.

We have all noticed the differences in the appearance of large tonsils. Sometimes we see a pair of tonsils which project into the throat, free from adhesions, with the openings of the crypts visible over almost the whole surface of the tonsil, in which the guillotine or wire snare will embrace and enucleate the whole organ. In another case the tonsils may be quite as large, but so bound down and adherent to the anterior pillar in front and the posterior pillar behind that it is utterly impossible to get a guillotine around them on account of these adhesions. To remove them they must be dissected out or attacked with the tonsillar punch or galvanocautery. This same difference we find in smaller tonsils, that is, the difference in adhesions to the surrounding structures. In case of peritonsillar abscess we almost always find a tonsil pretty firmly adherent to these different structures in the neighborhood.

As to the etiology of peritonsillar abscess, it seems to me that we have seldom any evidence of rheumatic or other general constitutional condition as a cause. As far as I have been able to learn from patients, we find no more history of rheumatism in cases of peritonsillar abscess than in anybody else, neither do many cases markedly rheumatic have attacks of peritonsillar abscess. But this we notice: One patient will have recurring peritonsillar abscess on the right side, perhaps twice a year or at irregular intervals, and the left side never be affected. It is impossible to believe that one side has any different diathesis from the other. It seems to me that this history, which is extremely common, points to some anatomical defect or local condition as the cause of the recurring abscess rather than any general conditions. The local cause it is impossible in most cases to make out. Sometimes the tonsil is large, sometimes small, adherent and hard, sometimes not. Generally the tonsil is pretty well bound down to neighboring structures.

As to the question of abortion of peritonsillar abscess, a certain number of cases — I am inclined to think they are larger in proportion to the total than we perhaps think, because they do not all apply to us for treatment — will undoubtedly spring a leak, as it were, after the suppurative process has been going on for a few days. A case will start in with pain on one side of the throat. The patient knows what it is, for he has laid up for days with peritonsillar abscesses in the past. It gets worse for a few days and then begins to get better. Every now and then on inspection we find a drop of pus oozing out somewhere, which in the course of another day or two would entirely empty the abscess.

The study of the anatomy of this part is extremely important, and the knowledge of the probable position of pus will help us to get at it. I feel that we do not yet know enough about the probable seat of pus to attack the right place as often as we ought to. These cases are hard to examine. The patient perhaps cannot open his mouth, everything done is painful, and it is not possible to study the part carefully. I have noticed that after an abscess has been opened through the anterior pillar and pus evacuated, a probe with a sharp curve passed in the direction of the supratonsillar fossa can often without much force be pushed through into the supratonsillar fossa. The discomfort to the patient is often less than the original puncture in the pillar. Abscesses rarely open spontaneously through the anterior pillar, almost always the pus comes out somewhere around the tonsil.

As to the prevention of peritonsillar abscess. I believe that almost all cases are due solely to some anatomical fault in the tonsil or neighborhood of the tonsil, some spot perhaps becomes infected and the natural outlet closed so that the septic process works back. Prevention seems to me to consist in getting rid if possible of that anatomical fault. The first thing surely is to get rid of the tonsil, and although I have not been able to follow many cases to ultimate conclusions I feel if we can clear out the whole tonsillar region of all glandular masses that we have done the

best for preventing the return of peritonsillitis. We may not at first in dissecting come across the place where infection enters.

Dr. J. Payson Clark: I was very much interested in this case of retropharyngeal abscess, which we had at the Massachusetts Hospital throat clinic last June. One or two points about it, as I remember the case, I think Dr. Goodale did not perhaps sufficiently emphasize. The case presented many of the characteristics of a cold abscess. There was no pain or other evidence of a local inflammatory process, but the abscess had the appearance of a hemispherical tumor, rising abruptly from the surrounding pharyngeal wall and differing in that way from the ordinary retropharyngeal abscess we see in children, which usually appears as a pushing forward of half or all the posterior wall. It stood out as a distinct localized tumor, and I should have said to one side of the pharynx rather than involving the whole posterior pharynx. Dr. Goodale took charge of the examination of the pus and I am glad that he has reported the case.

As to the rarity of these cases, I took the trouble to look over the books of the throat department, or rather our reports for the past twelve years since January, 1889, and I find there have been during that time 18 cases diagnosed as retropharyngeal abscess. Of these 6 were in adults, 5 men and 1 woman. In one of these adult cases the inflammation was spoken of as phlegmonous and in another it was thought to be a broken down gumma.

I have very little to add to the discussion of Dr. Cobb's paper. As regards treatment, I have opened the peritonsillar abscess in all the ways spoken of, by going between the anterior pillar and tonsil, going through the tonsil itself, and going through the anterior pillar; also in those cases, which I think are quite rare, where the abscess is in the posterior pillar, opening that. The first two methods are in every way the most satisfactory if the abscess cavity can be reached by them. I should like to emphasize what Dr. Farlow said about going into the abscess cavity with a probe and breaking up any little trabeculæ that may be there or opening up any separated pockets, and also the use of the forceps to dilate the opening. In this connection I wish to say that I think the thorough evacuation of the abscess cavity at the time the opening is made is very important. If one gets rid of all the pus one can, I think there is much less likelihood of a refilling of the abscess cavity, which does sometimes occur in spite of all that one can do.

Dr. Cheever: I have not seen any retropharyngeal abscesses except in connection with caries of the spine. I have seen but few, and they have always been cold abscesses. I think relief is given by opening, though I doubt if they close very soon, as almost any cold abscess connected with caries of bone results in a long-continued sinus. Psoas and lumbar abscesses are intolerably long; they sometimes close by gradual inspissation of the pus and shrinking up after a while, sometimes they do not. The retropharyngeal abscesses I have seen have been painless, and interfered mechanically with swallowing.

With regard to the abscess about the tonsil, the most interesting question to me is, what can be done, if anything can be done, to prevent recurrence. There are certain persons who have them over and over again. I have had as a patient a good many years a young man who rarely escapes a winter. Sometimes he goes two years, but generally has one every year when the seasons are breaking up towards spring. The last time he had follicular tonsillitis combined with the abscess, which I think is rare. The tonsillitis did not get better, the patches became large; I became alarmed about him; took a culture from the throat, and told him I might have to remove him from his hotel. The culture was negative, and the next day the whole region had swollen up and an abscess rapidly developed; and then the peculiar grayish look about the tonsils and palate, as well as the follicular points, gradually went away after evacuating the abscess. All my professional life I have had the care of a strong Irishman and have seen him frequently. During many years he had peritonsillar abscesses. I have opened a great many. He had no other sickness; never has been sick. I did not succeed in preventing them at all, but he came one day and said he had found a way of stopping them, and certainly it did seem to have a good deal of effect; not by any constitutional treatment, but local treatment externally by rapid blistering on the outside of the neck whenever he felt any symptom arise. This was followed by relief and no abscess. Of course it is always open to the doubt whether the abscess was about to form, but he was quite confident that he averted them. At any rate he went several years without any under this treatment. This treatment was harsh. He was in the habit of tying the throat up with kerosene oil, and the blistering was rapid and intense. As he grew older he ceased to have the attacks. He is now a man of perhaps sixty years old, and has not had any since he was forty-five or fifty. I am inclined to think the progress of age gradually does away with the tendency to inflammations of the cellular tissue. I have always felt great anxiety about these peritonsillar abscesses with regard to the nutrition of the patients, and with regard to affording them some comfort. They cannot swallow and cannot sleep. I have usually been afraid to give opium, and I have not had very great luck with cocaine; although sometimes if you paint the throat with a solution of cocaine, it seems as if they could drink a glass of milk afterwards with comparative ease.

In old times this affection was called quinsy, and you find in the old books as far back as the time of Cullen, and others, accounts of double quinsy followed by death. I do not remember to have heard of a death in this neighborhood, but there are very well authenticated cases in the old books where a double abscess has been followed by death, probably due to suffocation, and before the days of tracheotomy. As Dr. Knight says, I think these abscesses are benefited by saline cathartics. I have often been tempted to put leeches on the outside of the throat. I have seen other inflammations of the throat, threatening edema of the glottis, aborted by copious leeching.

Dr. Farlow: With reference to the lessening tendency to peritonsillar inflammation as patients get older, it is to be borne in mind that after the age of thirty-five or forty the tonsils naturally atrophy and become more fibrous, so that there is less likelihood of the crypts containing cheesy masses and germs which may act to start up a peritonsillar inflammation.

With reference to excision of the tonsil to prevent a recurrence of the inflammation, a mere removal of a portion of the tonsil, even down to the anterior pillar, may be of no great value. The diseased tonsillar tissue, the deep-seated crypts, should be thoroughly removed. This may be no easy matter and is not so well done with a guillotine as with a punch or some similar instrument, which can dig out the tonsil behind and between the pillars.

I have had much better success in preventing recurrence in this way than by the use of antirheumatic or other internal treatment.

DR. E. A. CODMAN: I have brought two x-rays which may perhaps interest the gentlemen in regard to the diagnosis of retropharyngeal abscess. One shows the side of the normal neck with the cervical vertebræ and outline of the pharyngeal wall; the other shows a case of cervical caries with the outline of the pharyngeal wall displaced by a retropharyngeal abscess or mass of inflammatory tissue.

DR. KNIGHT: I should like to ask if Dr. Coolidge would give us to understand that he has had a good many cases of recurrent form of peritonsillar abscess occurring in young subjects in whom you would have every reason to expect the continued recurrence, but in whom the attacks had entirely ceased after the removal of the tonsillar tissue?

DR. COOLIDGE: These cases are very hard to follow. They generally do not come back unless there is something the matter with them. I know of a few cases who have been free from it for some time after the digging out of the tonsil who before that had more or less frequent recurrences.

DR. KNIGHT: I would like to ask Dr. Coolidge if he feels that all cases originate from the tonsil?

DR. COOLIDGE: Not necessarily from the tonsil itself, but from the immediate neighborhood, some septic process between the pillars.

DR. H. F. R. WATTS: I have not heard it mentioned this evening whether or not it is common for abscess of the neck to occur in connection with peritonsillar abscess. I want to speak of a case I saw some months ago. A man who was not in the habit of having peritonsillar abscess came with a beginning one. There was not a fluctuating tumor, but there was the characteristic pain and edema of the pillars. I incised directly through the tonsillar substance. The tonsillar substance was fibrous and brawny. At a depth of about one-half inch I reached pus. It discharged a few days and he was better. He ceased to come back for about a week, then came and said it had stopped discharging in the throat a day or two after I last saw him, and he then began to have a swelling in the neck. He had a large abscess, directly s bcutaneous, over the sternomastoid and extending a ound to the median line and pretty nearly to the sternoclavicular notch. This was opened and a large quantity of exceedingly foul pus discharged. The whole thing kept him laid up about a month.

DR. GOODALE: I wish to say a word or two in regard to the etiology of these two forms of abscess. About three years ago I did some work on the power of the tonsil to absorb foreign substances in a state of minute subdivision when brought in contact with the walls of the crypts, and I found they went in very readily. I was urged by some pathologists to repeat the experiments, using harmless bacteria, but I thought that such an investigation would probably be misinterpreted by the laity and did not do it. I have just seen in the *Italian Archives of Laryngology* for May, 1900, that this has been done in Italy. The bacillus prodigiosus was brought in contact with the walls of the crypts of the tonsils, and made its way in very readily, not only into the interfollicular spaces, but into the interior of the follicles. On dogs the experiment was tried with virulent streptococci which penetrated even farther, that is, got into the extratonsillar lymph spaces immediately external to the capsule of the tonsil. It seems to me that these results may possibly answer Dr. Knight's objection to the idea of a tonsillar origin of peritonsillar abscess. I understood him to say that very often the abscess occurred without previous tonsillar inflammation. As has been shown here, virulent streptococci can make their way through the tonsil, apparently without giving rise to inflammation into the extratonsillar tissues, in which situation they may produce the abscess under discussion. A similar penetration of the lymphoid tissues of the fauces or pharynx by tubercle bacilli would explain the development of a tubercular retropharyngeal lymphadenitis in the absence of spinal caries.

DR. COBB: One object in reading this paper was in order to show that the puncture in the point of election through the anterior pillar has not in my experience been found very satisfactory. I am convinced that if the pus happens to be near the surface of the anterior pillar the point of election is the most satisfactory place, but if the pus is at all deep it seems to me it is not.

With regard to prevention I have said very little, but it has seemed to me in the few cases we have had a chance to watch at the hospital, in which the tonsil was as thoroughly removed as possible by punches, etc., used between the pillars as far as we could get, that the result rather moderated the number of abscesses, but did not stop them entirely.

Dr. Coolidge spoke of adhesions between the tonsil and the pillars being almost always present in these cases. It seems to me that that is quite true, and yet it is only this morning that we had a case of recurrent peritonsillar abscess not in an acute stage which had very large tonsils, and I think Dr. Coolidge will recollect we took them out with a snare, and the surface was absolutely smooth and glistening and without any adhesions. Removal of the tonsil by the usual method is not preventive of abscesses, but enucleation offers the best chance for success.

THE AMERICAN PHYSIOLOGICAL SOCIETY.

THIRTEENTH ANNUAL MEETING, HELD IN THE PHYSIOLOGICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD., DECEMBER 27 AND 28, 1900.

(Concluded from No. 4, p. 93.)

SECOND DAY.

FURTHER OBSERVATIONS ON EPINEPHRIN.

THIS paper by DR. J. J. ABEL was read by DR. R. HUNT.

A recent paper by Moore and Purington criticises the conclusions drawn by Professor Abel from his experiments on epinephrin, on the ground that the purified epinephrin compounds prepared by Abel from the

suprarenals do not show physiological activity proportionate to that exhibited by crude extracts of the glands. In this report it is shown that these preparations of epinephrin have a much greater effect on blood pressure than do the so-called "crude extracts" used by Moore.

The extracts used by Moore, however, were not crude, since the coagulable proteids and substances precipitable by lead acetate had been removed. Furthermore the injection of 5.7 millionths of a gramme per kilogramme of dog's body weight is found to give a rise in blood pressure equivalent to that obtained by Moore after injection of 24–108 millionths of a gramme of "crude extract." The minimal amount of "crude extract" necessary to produce a rise in blood pressure is, according to Moore, 1.2 millionths of a gramme, while the same effect may be accomplished by .45 millionths of a gramme of the pure epinephrin.

The fall of pressure which Moore observed when extremely dilute extracts were used is probably due to impurity. Attention is also called to the fact that if the rate of injection be too rapid, a rise of pressure may result from the injection alone.

It is also found that epinephrin solutions on standing become inactive, as the result probably of rearrangement of the molecular constitution.

FURTHER INVESTIGATIONS ON THE BLOOD-PRESSURE-LOWERING BODIES IN THE SUPRARENALS.

This paper was read by DR. R. HUNT. The earlier investigations by Dr. Hunt have shown that along with the blood-pressure-raising substance in the suprarenals, there exists a substance which lowers blood pressure and which may be separated from the former by treatment with benzoyl chloride. Last year he suggested that this substance might be choline. It is now shown that, while choline is contained in these preparations, another body is present which, unlike choline, forms a compound with mercuric chloride insoluble in cold water. It also differs from choline in giving a fall of blood pressure when injected into an animal already treated with atropine. The substance yields choline on decomposition. It may therefore consist of a glycerophosphate of choline arising from the breaking down of lecithins or jecorin. That it can be neither of these substances is shown by its insolubility in alcohol and ether. A substance which possesses the same properties is found to exist in brain extracts containing large quantities of the decomposition products of lecithin and jecorin. The toxicity of this substance is much greater than that of choline.

An indication of its possible pathological significance lies in the suggestion that it may be the precursor of the choline which is to be found in the cerebrospinal fluid in cases of general paralysis.

PHYSIOLOGICAL STUDIES ON THE BLOOD TAKEN FROM ANIMALS DEPRIVED OF THE ADRENALS.

DR. I. LEVIN read this paper by title.

DRS. L. B. MENDEL and E. C. SCHNEIDER presented a paper entitled

FURTHER EXPERIMENTS ON THE EXCRETION OF KYNURENIC ACID.

Jaffe's observation, that the excretion of kynurenic acid is diminished by feeding intestinal antiseptics, has led him to the belief that this substance, which is normally present in dog's urine, owes its origin to the formation of quinoline in the intestine as the result of putrefactive processes. The feeding of iodoform, however, does not have this effect. The probability is therefore suggested that kynurenic acid arises from the profound cleavage of proteid either as the result of digestive decomposition or of starvation.

In a number of experiments on fasting dogs, kynurenic acid was invariably found in the urine. Baumann's experiment, showing that after prolonged starvation, accompanied by the administration of calomel, kynurenic acid is still eliminated, was successfully repeated. This treatment, however, causes complete disappearance of all traces of intestinal putrefaction — that is, combined sulphuric acid — in the urine.

In phosphorus poisoning it is found that the increase in the amount of kynurenic acid excreted runs parallel with the increased katabolism of proteid. Observations on its elimination after removal of the spleen show that that organ plays no part in its formation.

Experiments were also made which show that the decrease in excretion of kynurenic acid which follows feeding of thymus glands is not due to the antiseptic action of nucleic acid, as Jaffe supposed, but to the fact that the decomposition of the proteid of the thymus does not yield kynurenic acid, that they behave in this respect like gelatine, chondrin and elastin.

DOES MUSCLE CONTAIN MUCIN?

This report was read by DRS. G. A. FRIED and W. J. GIES. It is designed to show something of the nature of the substance separated from muscle connective tissue by Schepilewsky and called by him mucin, but which has recently been found by Goodman to consist neither of mucin nor nucleoproteid, but of a substance comparable to von Holmgren's "stroma substance."

Experiments show that extraction of muscle connective tissue with lime water or baryta water separates a substance which is precipitated on neutralization or faint acidification, but which, unlike mucin, is soluble in a weak excess of acid. Further extraction with 5% solutions of NaOH or KOH of the residue left after such treatment yields a substance which is also precipitated by neutralization but which dissolves in a slight excess of acid. Analysis of these products shows that they correspond closely to the substances separated by Schepilewsky and by Goodman, and probably consist of alkali albuminate formed by the action of the extractive fluids.

The results also show that the presence of mucin in muscle cannot be determined by such methods as have thus far been employed.

DRS. A. N. RICHARDS and W. J. GIES contributed a paper entitled

METHODS OF PREPARING ELASTIN, WITH SOME FACTS REGARDING LIGAMENT MUCIN.

The presence of a mucin-like substance in ligament was reported by these observers a year ago. Closer study of this body proves that it is identical with mucin in all its properties. The average of analyses of five preparations shows that it contains 13.4% of nitrogen, and 1.6% of sulphur, of which 1.06% exists in ethereal combination.

The question was also studied as to whether the approved method for the preparation of elastin from

ligament is adequate for the removal of mucin and coagulable proteids. Three preparations of elastin were made, in which the finely divided ligament was subjected to thorough preliminary extractions with lime water and distilled water for the removal of these substances. In four other preparations this treatment was omitted. To determine the presence of mucin and coagulable proteids the final products were analyzed for sulphur. The preparations from which these substances had not been removed contained .2% of sulphur, a portion of which is easily split off as K_2S by boiling with KOH; while the sulphur in the elastin which had not been subjected to the preliminary extractions amounted to .15%, all of which is firmly combined. These figures include the sulphur of the ash, which amounted in all preparations to .11%.

Data were also given regarding the distribution of nitrogen in the decomposition products of elastin. Decompositions according to Schultze's method were made on three samples of elastin with closely agreeing results. The average of these results shows that 2% of the total nitrogen is split off in the form of ammonia, 2.8% as organic bases, namely, arginin, lysin and histidin, and 95.4% as amido acids. These figures support the assertion of Kossel and Kutscher in opposition to Bergh and Hedin, that arginin and lysin may be obtained on decomposition of elastin.

ON THE OCCURRENCE ON LIPASE IN THE BODY, AND ITS REVERSIBLE ACTION.

DR. A. S. LOEVENHART read this paper by invitation. To determine the presence of lipase the hydrolysis of ethyl butyrate into ethyl alcohol and butyric acid is employed. On examination of the various tissues of the body, lipase was found to be present in many, the relative amounts being represented by the following table:

Pancreas	1
Liver	2.93
Intestinal mucosa	.75
Kidney	.50
Submaxillary glands	.38

The suggestion is offered that the utilization of the body fat during inanition is brought about through the action of this enzyme, the fat being hydrolyzed by lipase and so transferred to the blood and lymph.

The fact that maltose has been shown to possess a reversible action, being capable of transforming glucose into maltose, as well as maltose into glucose, has led the author to the study of the effect of lipase on solutions containing mixtures of ethyl, alcohol and butyric acid. It is found to have a decided action on these substances, transforming them into the neutral ethyl butyrate. The extent of its action in this respect is dependent on the relative amounts of these three substances in solution; its activity ceases when equilibrium is reached.

The application of these observations to the other enzymes may lead to most important results regarding their action. It is possible that the glycolytic function of the tissues is due simply to a reversal of the process of glycogenesis.

DRS. WALTER JONES and JOHN AUER presented a paper

ON THE OXIDATION OF NATIVE PIGMENTS.

The black pigment from the horse's tail was dissolved in very dilute caustic soda and a 2% solution of potassium permanganate added in successive portions until a further addition would presumably have imparted a permanent pink tinge to the solution. The solution was then acidified strongly with HCl and treated with barium chloride. After filtering off the precipitate formed, the amber-colored filtrate was nearly neutralized with caustic soda, the resulting bulky precipitate being allowed to stand some days in contact with the liquid. Part of this precipitate is light and flocculent, while another part is heavy and crystalline, so that an easy separation of the two substances was possible.

The flocculent portion was shown to consist of a series of barium salts of varying color and solubility in dilute HCl, while the granular portion was found by analysis and chemical reactions to be a mixture of oxalic and malonic acids. These substances obtained in relatively large quantity undoubtedly represent largely the molecule of the original pigment.

The work indicates that the benzene nucleus plays a much less important part in the pigment molecule than was formerly supposed, and that the essential part of this molecule is probably an unsaturated fatty acid derivative.

DR. L. B. MENDEL gave some

OBSERVATIONS ON THE PRODUCTS OF PAPAIN AND BROMELIN PROTEOLYSIS.

The exact nature of the products formed by the action of enzymes of vegetable origin have not received sufficient study to enable us to tell whether one or several types exist. For this reason the author has investigated papain, the proteolytic enzyme of the *Carica papaya*, which has usually been regarded to be closely related in its action to trypsin.

It is found that papain preparations show proteolytic activity in both alkaline and slightly acid media. The primary products of proteolysis, carefully studied in the case of casein, correspond quite closely with those obtained by F. Alexander from peptic digestion. Leucin, tyrosin and tryptophan were not detected in any digestion where the influence of bacteria or bacterial enzymes was excluded.

These observations indicate that papain differs from known proteolytic enzymes of animal origin, and also from vegetable enzymes like bromelin, which readily forms leucin, tyrosin and tryptophan even in acid media.

ANALYSIS OF SOME NUCLEIC ACIDS.

DR. P. A. LEVENE read this paper. The older methods for the separation of nucleic acids from tissues are very varied and each is applicable to only one tissue. Accurate comparison of the different nucleic acids is therefore impossible. The method devised by the author and published by him last year is applicable to many tissues and so affords a basis of comparison.

Paranucleic acid from the egg yolk (vitellinic acid) made by this method agrees very closely with that from codfish eggs (ichtulinic acid), as the following figures show:

Vitellinic acid	C 32.31, H 5.58, N 13.13, P 9.38
Ichtulinic acid	C 32.56, H 6.00, N 14.00, P 10.34

Nucleic acid, prepared from the pancreas by this method, was also analyzed. The figures obtained differ from those obtained by Bang on his so-called guanylic acid from this gland, but agree very closely

with Schiemedeberg's analysis of nucleic acid from salmon sperm, and Osborne's figures on the nucleic acid from the wheat embryo.

This nucleic acid from the pancreas conforms to all the ordinary solubilities of nucleic acid and on its decomposition yields guanin and adenin. Bang's guanylic acid, on the contrary, possessed peculiar solubilities and only guanin was found after decomposition.

These facts give positive value to Dr. Levene's work, since they show that a body belonging to the ordinary type of nucleic acids may be separated from the pancreas, and give further proof that no form of nucleic acid is to be distinguished by yielding only one of the nuclein bases on decomposition.

Analysis of the nucleic acid from the bacillus tuberculosis showed that it contained 29% of phosphorus, the largest amount yet obtained in any nucleic acid.

The interesting observation was also made that large amounts of glycogen are to be found in the bacillus tuberculosis as well as in the pancreas.

A FURTHER STUDY OF THE GLYCOPROTEID IN BONE.

DRS. P. B. HAWK and W. J. GIES read this paper. This constituent of bone discovered by Dr. Gies, and designated by him as osseomucoid, has been subjected to a closer study with the following results. Analysis of many preparations show slightly varying results. The analysis of their purest preparation, however, gives the following composition:

C 46.41, H 6.76, N 12.08, S 2.04, O 32.71, S as ethereal sulphate 1.08.

The composition of Mörner's chondromucoid from cartilage is as follows:

C 47.30, H 6.42, N 12.58, S 2.42, O 31.28, S as ethereal sulphate 1.72.

Comparison of these figures shows that osseomucoid contains more hydrogen and oxygen than chondromucoid, and correspondingly less of the other elements; a relation which may have much morphological as well as physiological significance.

DRS. J. E. KIRKWOOD and W. J. GIES read a paper on

CHANGES IN THE COMPOSITION OF THE COCOANUT DURING GERMINATION.

In studying the germination of the cocoanut, the fresh nuts were kept at a tropical temperature on moist earth for one year. At the end of this time a stout plumule had appeared, about two feet in height, and a number of roots had pushed through the softened outer husk and had taken hold in the soil. The milk cavity of the ovule was completely filled with the fully developed cotyledon, which had absorbed a large portion of the endosperm. The nuts were in this condition when used for analysis.

Considerable quantities of a diastatic ferment and traces of a proteolytic ferment were found in the cotyledon. No cellulose-dissolving or fat-splitting enzymes have yet been detected.

Interesting data were presented, representing a large number of analyses, to show the relative distribution of water, solids, inorganic matter, and nitrogen in the roots, stem, leaves, cotyledon and endosperm of the germinated as compared with the ungerminated nut.

A NOTE ON THE USE OF A SATURATED SOLUTION OF MAGNESIUM SULPHATE FOR PREVENTING THE COAGULATION OF BLOOD IN BLOOD-PRESSURE EXPERIMENTS.

THE PHYSIOLOGICAL ACTION OF THREE POISONOUS MUSHROOMS, AMANITA MUSCARIA, A. BULBOSA OR VERNA, AND A. PHALLOIDES.

DR. W. S. CARTER read the above papers by title.

At a business meeting held at the close of the session on Thursday morning, the following were elected to membership: Prof. F. G. Novy, University of Michigan; Dr. I. Levin, New York City; Dr. A. N. Richards, Columbia University; Prof. G. H. Parker, Harvard University; Dr. Yandell Henderson, Yale University; Dr. Horst Oertel, New York University and Bellevue Hospital Medical College; Dr. S. I. Franz, Harvard University; Dr. Holmes C. Jackson, Yale University; Dr. R. S. Woodworth, New York Hospital and Bellevue Hospital Medical College; Prof. C. W. Greene, University of Missouri; Dr. P. M. Dawson, Johns Hopkins University; Prof. C. A. Herter, New York University and Bellevue Hospital Medical College; Dr. A. J. Wakeman, New York City; Dr. J. T. Halsey, McGill University; Dr. W. H. Parker, Harvard University; Dr. W. B. Cannon, Harvard University.

Recent Literature.

The Present Position of the Treatment of Simple Fracture of the Limbs. By WILLIAM H. BENNETT, F.R.C.S., Senior Surgeon to St. George's Hospital, etc. London, New York and Bombay: Longmans, Green & Co. 1900.

This brochure of 41 pages is a reprint,[1] after revision, of an address delivered by its author in opening a discussion at the meeting of the British Medical Association of August, 1900. It is the result of an analysis of data furnished by three hundred selected surgeons of London, Ireland, Scotland and the Provinces. The subject of early movement in the treatment of fractures; the operative treatment of simple fractures of long bones, the patella, and olecranon; the disability resulting from fractures, and the ambulatory treatment of fractures are in turn discussed. Finally the writer's conclusions are concisely stated.

In an appendix is presented a summary of the data from which Mr. Bennett has written his monograph. The surgeons from whom they were obtained are all members of the senior staffs of hospitals, having not less than one hundred beds, or practitioners doing extensive work among coal miners or sailors. The data have been tabulated in various ways. The monograph is well written. It is an interesting discussion of an important subject. It is valuable on account of its statistical information culled from such a wide field, and the manner in which it has been considered and tabulated. It represents the results of thorough, careful, painstaking investigation (except perhaps as regards ambulatory treatment). It is a contribution of merit and one deserving of study.

[1] British Medical Journal, October 7, 1900.

On the Use of Massage and Early Passive Movements in Recent Fractures and other Common Surgical Injuries, and the Treatment of Internal Derangements of the Knee Joint. By WILLIAM H. BENNETT, F.R.C.S., Senior Surgeon to St. George's Hospital, etc. Pp. 97, with 12 illustrations. London, New York and Bombay: Longmans, Green & Co. 1900.

This little book comprises three clinical lectures delivered by the author at St. George's Hospital, London, and afterwards published in the *Lancet*. The publication of the work in its present form has been postponed till now in order that more extended clinical observations might be made by the writer, especially with regard to the "internal derangements of the knee." His idea is that early massage and passive movement properly applied in selected cases is a valuable method of treatment and will often relieve muscular spasm and pain, and prevent complication resulting in nerve irritation and impaired motion. He makes a forcible plea for its use.

His argument is logical and his illustrations interesting and striking. His work shows extended clinical experience, also close study of detail and careful observation. His method is perhaps most startling as applied to the treatment of fractures of the olecranon and patella. His statements and results present ideas and suggestions so radically different from those commonly adopted that the reader's attention is aroused. As he turns the pages facts and ideas therein presented cause him to consider seriously the present routine treatment of fractures.

The chapter on the internal derangements of the knee is written after the clinical observation and study of 250 successive cases. It is the most interesting and valuable contribution to this subject since Allingham published his excellent monograph.[1]

The book and the principles it contains deserve careful study, for if experience demonstrates the correctness of its author's statements he will have contributed much to the successful treatment of the lesions he describes.

Musser's Diagnosis. A Practical Treatise on Medical Diagnosis. For the Use of Students and Practitioners. By JOHN H. MUSSER, M.D., Professor of Clinical Medicine, University of Pennsylvania. New (fourth) edition, thoroughly revised. In one octavo volume of 1,104 pages, with 250 engravings and 49 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1900.

The previous, the third, edition of "Musser's Medical Diagnosis," issued only a year ago, has been exhausted and is followed by a fourth edition. It is only five years since the appearance of the first edition. This is a very positive evidence of the popularity of the work, a popularity which a critical acquaintance with its pages shows to be well deserved and creditable to the appreciation of those who use it.

The publication of frequent new editions at short intervals puts an author in a position to bring and to keep his book quite up to date, an important matter in these days of frequent changes, of new discoveries, of varying laboratory processes; and of this opportunity Dr. Musser has carefully and conscientiously availed himself.

[1] The Treatment of Internal Derangements of the Knee Joint by Operation. By Herbert Wm. Allingham, F.R.C.S. London: J. W. A. Churchill. 1899.

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REPORT OF THE MEDICAL DEPARTMENT IN THE PHILIPPINES.

WE have before us a copy of the report of the chief surgeon of the Division of the Philippines, Dr. Charles R. Greenleaf, covering the first seven months of 1900. This report is included in General MacArthur's annual report on his military department for the year 1900 and is a document of unusual interest, both from the actual facts contained regarding medical conditions in the army of occupation, and also as indicating the deficiency of the present system and the needs of the future. The military situation has changed during the period covered by the report more than at any period of equal length since the beginning of the American occupation, due to the garrisoning of various posts at widely separated points throughout the islands. During seven months the number of these posts had increased from 123 to 375, leading to extraordinary demands upon the medical force, which has, in fact, been wholly insufficient.

The general health of the army has shown a gratifying improvement. The ratio of non-effectives to the whole strength until January, 1900, ranged from 9% to about 13%. The average for the succeeding seven months was 8.84%, although the period covered included those months which are most productive of sickness. Intestinal diseases, including typhoid fever, caused 35.2% of the total disabilities; malarial fever 23.2%; wounds and venereal disease furnished about an equal number, with a ratio of approximately 9% to 10% of the total. It is furthermore estimated that about 45% of the non-effective force suffers from disease which might be prevented were sanitation more perfected than is at present possible. It must also be borne in mind, the report insists, that sickness in the tropics is of much more serious moment than in temperate regions, because of the effect of the climate in retarding recuperation. The result of illness is therefore cumulative, each new attack of disease, perhaps not dangerous in itself, adding to the total, until permanent disability ensues. Malaria offers the best out-

look for recovery of the common diseases, but reinfection is common, and the general health is not infrequently permanently undermined. Tuberculosis, dysentery, typhoid and rheumatism are all serious in their final results. Venereal disease has been kept well within control, and adds but a small proportion to the total sick. Smallpox, through extensive vaccination, has also not proved a serious menace to life, although the disease has appeared in various localities.

Although disabling sickness has, on the whole, decreased somewhat, the number of deaths in the army has steadily increased. Dr. Greenleaf thinks that "by careful sanitary inspection, the sick list may be decreased by cutting down the number of preventable diseases, and this is hoped for and expected, but the non-preventable diseases will constantly become more severe in type and more intractable, owing to the increasing debility incident upon long continued tropical service." There has been an average death rate of 4.7 daily, with the ratio of deaths due to disease as compared with those due to wounds about 3 to 1. The mortality rate is about 26.7 per 1,000 a year, or 2.22 per 1,000 a month. Next to gunshot wounds dysentery has been the most fatal disease, much more so than typhoid fever. The prevention of the latter disease has been most creditable to the medical service, for the difficulties to be overcome in sanitation have been numerous and discouraging. Although the disease has a perfectly definite foothold in the islands there has been no extended epidemic among the troops. This admirable result has been brought about by strict care in isolation, disinfection, segregation of suspects, and vigilance in watching the non-infected portion of the command involved.

The all-important matter of sanitation is discussed at considerable length and contains many excellent suggestions, which it is to be hoped may be carried into effect. It is urged that a corps of duly authorized inspectors be organized. Heretofore it has been necessary to utilize such officers as have been available, who have naturally been somewhat inexperienced in the line of work they have been called upon to perform. The results have been good, but are not as gratifying as might be desired. The cessation of active campaigning, with its accompanying dangers, has been attended with certain distinct disadvantages. The monotony of garrison life, with the constant apprehension occasioned by the possibility of night attacks, has had a demoralizing effect upon the troops. More important has been the failure of officers and men to appreciate the sanitary difference between a stationary and a moving command. In the latter case the disposal of waste becomes a matter of paramount importance, a fact which even duly qualified medical men are slow in appreciating until they have had actual experience. Recognizing this, every effort has been made by the Medical Department to systematize sanitary inspection and to correct errors where found. The really serious difficulty in the way of carrying out this plan has been the wholly inadequate number of available medical officers. It is estimated that about 120 stations were (July 1st) unsupplied with medical men, a state of affairs clearly detrimental to the proper execution of sanitary laws.

As stated above, the extensive vaccination of natives has led to a most satisfactory result as regards smallpox. The disease has also been very slightly prevalent among the troops, constituting only .089% of the total mortality. Leprosy is a disease against which active measures are demanded. There is a large number of lepers scattered through the archipelago, probably about 30,000; for these an isolation island is needed, similar to the now famous Molokai of the Hawaiian Islands, if the progress of the disease is to be checked. Our impression is that since the printing of this report, definite action in this matter has been taken.

Considering the short time during which organization has been possible the hospital system appears to be in a fairly satisfactory condition. A well equipped pathological laboratory for the benefit of the hospitals in Manila, under the charge of R. P. Strong, Assistant Surgeon, U.S.A., is likely to prove of great value, and is doing much toward establishing all medical work on a higher plane of efficiency. Although no dogmatic statements are made Dr. Greenleaf seems to be of the opinion that soldiers invalided home are not likely to be again serviceable in the Philippines, owing to the strong tendency to relapse. Evidently more experience is needed, however, before any definite rule may be laid down.

Of the medical personnel the report speaks feelingly. There is a crying need of more physicians, and the need is growing greater continually because of the constant occupation of new posts. On August 10th there were 229 men to supply over 400 posts. When the report was submitted it was estimated that 500 medical officers were needed to properly care for the troops then in the Philippines. Dr. Greenleaf does not believe in the contract system, of which he says in part: "I am now more than ever impressed with the fundamental weakness of the contract system. To place civilians without real rank or authority in the position of quasi officers is an injustice to the surgeon himself, and to the Medical Department, which has to be responsible for his acts; his contract is made for one year only, and after that time he can demand his release from duty, no matter how urgently his services may be needed; while performing an officer's duties he is not one, and this knowledge makes him less exact and prompt in bending to military discipline; if he is wounded, he gets no pension; if he deserts and leaves his post unsupplied with medical attendance, there is no law known to me by which he can be punished or brought back and made to perform his duties; he gets a year's experience and is just beginning to know his duties when his contract expires, and an untrained man takes his place, and the process begins anew. Supplies are wasted, military papers are not properly made out, and to disci-

pline and train men for such short service is a hopeless task. The contract surgeon system is the least economical, the least effective and the least satisfactory system that could be devised." This is a severe arraignment, and one which should certainly have weight, coming as it does from a man who has had ample experience in the working of the system.

The report contains many facts not alluded to here, which are of great interest and importance. Its recommendations are reasonable and most temperately stated, and should receive the attention they deserve at the hands of those in authority.

MOSQUITOES AND YELLOW FEVER.

IF recent investigations are to be trusted, and there seems to be no reason to doubt their accuracy, the rôle of the mosquito as a conveyer of infection is about to be very materially extended. As is generally known, researches have been carried on for some months in Cuba by an army board consisting of Drs. Reed, Carroll and Agramonte, for the purpose of determining the relation of the mosquito to the propagation of yellow fever. These experiments have been carefully carried out, with the general result that a definite relation has been shown to exist between the insects and the fever. The establishment of this relationship has led the authorities of Havana to institute a systematic attempt to exterminate the mosquitoes by destroying the larval forms, as recently stated in another column. This is a "large contract."

In view of this investigation, which seems likely to have immediate practical results, it is of interest to call attention to a paper by Dr. Charles Finlay, of Havana, which has recently appeared in the New York *Medical Record*. Dr. Finlay has long been interested in the mosquito theory of yellow fever, and has from time to time written papers on the subject of much theoretic value, although they did not bring the conclusive proof which is demanded of a scientific theory. In 1891 Finlay concluded that the propagation of the disease might best be explained through the agency of an intermediate host, a condition which the tropical mosquito seemed to satisfy. Regarding this he says in his recent article to which reference has been made:

> The climatic and topographical conditions which are known to favor the propagation of yellow fever may be reduced to three: temperature (70° to 90° F.), atmospheric moisture with proximity to the sea or to water courses, and low levels (never exceeding 4,000 feet nor generally above a few hundred). The same conditions seem to be likewise indispensable for the vitality, functional activity, and reproduction of the "*Culex* mosquito." Being a hibernating insect whose functional activity can adapt itself only to tropical climates, it becomes benumbed and unable to sting when the temperature falls below 60° or 65° F., and it may thus remain in a condition of apparent death, from which, however, it will revive when the temperature is again raised to about 65° or 70° F., provided the refrigeration has not been carried to below the freezing point. Moreover, the same limits, below 65° or 70° F., appear to impede the transformation of the larvæ into the winged insect. On the other hand, temperatures beyond 95° F. also deprive the *Culex* mosquito of its movements, and it dies at 105° or 110° F. When the insect is confined in an atmosphere artificially rarefied to correspond to altitudes of 4,000 to 6,000 feet, it is unable to fly, at least for a while, or to sting. If we consider the smallness of its wings it seems unlikely that the *Culex* mosquito will, of its own accord, fly to any considerable height or distance, especially when weighted by the blood which it has ingurgitated. These peculiarities agree with what is known about the propagation of yellow fever, its tendency to invade the lower stories of buildings in preference to the upper ones, and its non-transmissibility in places like the City of Mexico, Puebla, Petropolis, situated at considerable altitudes above the sea level.

Finlay explains in a readable way how under the hypothesis of transmission by mosquitoes, certain outbreaks of yellow fever, otherwise difficult of interpretation, may be satisfactorily accounted for. It has, however, remained for the recent government commission to place the whole matter on a firmer experimental basis, so that from this time forth, no doubt, a systematic attempt will be made to exterminate the insects in those regions in which the disease is more or less endemic. It is hardly necessary to say that a much more complete investigation is required before the mosquito is made wholly responsible for the spread of the fever; it is altogether unlikely that there are not other modes of dissemination, a fact which we should not lose sight of in the enthusiasm of these new and far-reaching discoveries.

THE BRITISH CONGRESS ON TUBERCULOSIS.

THE last General Congress on Tuberculosis was held in Berlin; the next will be held in London, the King of England being president. The last congress was a most interesting and profitable occasion and the next promises to be no less so. The subject is eminently one of international interest, needing international study and co-operation. The main object of the forthcoming congress, as of its immediate predecessors, is to exchange information and experience gained throughout the world as to methods available for stamping out this, the most universal and destructive of all diseases. Papers will be read, and clinical and pathological demonstrations will be given, while the museum, a special feature of this congress, will contain pathological and bacteriological collections, charts, models and other exhibits. Leading authorities in all countries will be invited to contribute to the elucidation of the historical, geographical and statistical aspects of the subject. As a practical result resolutions will be formulated, it is hoped, calculated to indicate the public and private measures best adapted for the suppression of this widespread plague.

It is proposed to divide the congress into four sections: I. State and Municipal; II. Medical, including Climatology and Sanatoria; III. Pathological, in-

cluding Bacteriology; IV. Veterinary — Tuberculosis in Animals.

The meeting will open July 22d, and last through Friday, July 26th. The congress will consist of honorary members, delegates and members. Further information may be had of the secretary general, 20 Hanover Square, London, and to him abstracts of papers or communications should be sent on or before June 15th next.

MEDICAL NOTES.

THE PAST CENTURY IN MEDICINE. — The New York *Sun* has been publishing a series of notable articles on the progress of the last century in great subjects. The sixth paper in this series, on "Medicine," by Dr. Osler, of Johns Hopkins University, is a most satisfactory review. It is at once so simple and clear in language and form as to be perfectly comprehensible to the laity, and yet so free from the inaccuracies of half statements as to be perfectly acceptable to the initiated. This is no small praise. We must content ourselves with one extract from the opening paragraphs of an article which occupies twelve closely printed columns: "To us in the medical profession, who deal with this unit, and measure progress by the greatest happiness to the greatest number, to us whose work is with the sick and suffering, the great boon of this wonderful century, with which no other can be compared, is the fact that the leaves of the tree of Science have been for the healing of the nations. Measure as we may the progress of the world — materially, in the advantages of steam, electricity and other mechanical appliances; sociologically, in the great improvement in the conditions of life; intellectually, in the diffusion of education; morally, in a possibly higher standard of ethics, there is no one measure which can compare with the decrease of physical suffering in man, woman and child, when stricken by disease or accident. This is the one fact of supreme personal import to every one of us. This is the Promethean gift of the century to m n."

SANITARY CONDITIONS IN HAVANA. — The following statistics, provided by W. C. Gorgas, chief sanitary officer of Havana, show the general improvement in sanitary conditions in that city: "The number of deaths in December, 1900, was 485. The smallest number for any December in the preceding ten years was in 1893, with 517 deaths. We make an equally good showing when we come to compare the death rate 23.28 for 1900, the next smallest being that of 1899, when we had 27.10. The two smallest rates for December since 1890 have been those of the American occupation, 1899 and 1900. The rate for 1900, compared with that of 1899, for December, shows a continuous improvement over the conditions then existing. Last month we had 214 cases of yellow fever, with 54 deaths; this month 62 cases, with 20 deaths. This is a slight improvement over December of last year, when there were 70 cases, with 22 deaths. The little yellow fever we have comes almost entirely from the recently arrived Spanish immigrants, more than two-thirds of the cases having been here less than one year. Immigration still continues large, 4,206 for December."

ST. LOUIS CITY HOSPITAL ALUMNI. — At the annual meeting of the Medical Society of the St. Louis City Hospital Alumni, held December 20, 1900, the following officers were elected for the ensuing year: President, Dr. Norvelle Wallace Sharpe; Vice President, Dr. Francis L. Reder; Secretary, Dr. John Green, Jr.; Treasurer, Dr. Horace W. Soper.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 30, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 122, scarlatina 33, measles 59, typhoid fever 5.

REPORT OF WALTHAM, MASS., HOSPITAL. — The thirteenth annual report of the Waltham Hospital shows the number of patients admitted during the year to have been 586; the largest number of patients in the hospital any one day was 49; number of accidents received during the year was 30; number of bacteriological examinations for diphtheria bacilli was 1,903, and for tubercle bacilli 53; number of scarlet fever cases 42; diphtheria 171; deaths from diphtheria 7; deaths from all causes 34. There was an increase of 46.5% over the previous year in the number of in-patients treated.

BEQUESTS TO HOSPITALS. — By the will of the late Robert Codman, of Boston, the following bequests to hospitals are made: Five thousand dollars to the Massachusetts General Hospital; $5,000 to the Massachusetts Homeopathic Hospital; $5,000 to the Carney Hospital; $5,000 to the Boston Lying-in Hospital: $5,000 to the House of the Good Samaritan; $5,000 to St. Luke's Home for Convalescents, Roxbury; $5,000 to the Holy Ghost Hospital for Incurables, Cambridge.

STATISTICS OF MASSACHUSETTS HOSPITAL FOR DIPSOMANIACS AND INEBRIATES. — According to the superintendent's report of this hospital it is learned that the past year has been the most active in the history of the hospital; beginning with 174 patients, it closed with 258 — an increase of 84. The number of commitments was 418 — a gain of 108 over the preceding year.

MEETING OF MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH. — At the annual meeting of this association, held recently in Boston, there was a discussion on the topic of "Glander in the Human Subject." A paper was also presented by William Lyman Underwood, on "Drainage of Wet, Rotten and Spongy Lands in Cambridge and Belmont."

A POSSIBLE HOSPITAL FOR CONTAGIOUS DISEASE AT CAMBRIDGE, MASS. — The Board of Health of Cambridge is discussing the advisability of the estab-

lishment in the city of a hospital for the treatment of contagious disease. Mayor Dickinson is said to favor the plan.

A CENTENARIAN. — Mrs. Anna Graffam, of Lewiston, Me., died January 23d, at the reputed age of one hundred and one years and nine months.

DIPHTHERIA IN CAMBRIDGE, MASS. — Several new cases of diphtheria have been reported to the Board of Health in Cambridge.

NEW YORK.

REFUSAL OF MUTUAL LIFE INSURANCE CO. TO PAY POLICY. — The refusal of the Mutual Life Insurance Company, of New York, to pay the $240,000 policy of the late James C. Pearson, of Boston, has developed a legal question said to be unique in insurance annals. The refusal is based on the ground that Mr. Pearson, who four days previously had passed a successful physical examination, was operated on for appendicitis the very day the policy was taken out and the first premium paid. Death occurred within twenty-four hours after the operation. The company in taking this action relies upon the following clause in its application contract: "And this contract shall not take effect until the first premium shall have been paid during my continuance in good health." It has announced its readiness to return to the heirs the $15,000 constituting the first premium on the policy. Heirs of Mr. Pearson on January 25th filed claim for the full amount of the latter, and their claim raises the interesting question of an insurance company's liability on a policy for which the taker had been accepted by the company's medical examiners, but which was taken out at a later time, when the prospective holder was lying dangerously ill. The family assert that Mr. Pearson's private secretary, who attended to the taking out of the policy after his employer's return to Boston, from New York, acted in entire good faith, being unaware of the latter's sudden and serious illness.

A CASE OF SMALLPOX AT BELLEVUE. — The first case of smallpox met with in Bellevue Hospital since the beginning of the outbreak in the city occurred during the past week. The patient, a young man of twenty, who was admitted one evening about 5 o'clock, remained in the wards over night. He was supposed to be suffering from influenza and it was not until the following day that the true nature of the disease was discovered.

EXTENSION IN USE OF WIDAL REACTION. — Dr. Doty, health officer of the port, has had sent to physicians throughout the State, outside of the larger cities having facilities for bacteriological work, circulars explaining the availability of the Widal reaction in the diagnosis of typhoid fever and offering to test at the quarantine laboratories specimens of blood or serum forwarded by any physician in the State.

TUBERCULOSIS AND TYPHOID AT SING SING. — Dr. Daniel Lewis, president of the State Board of Health, has made a report on the State prison at Sing Sing in which he calls attention to the prevalence of phthisis and typhoid fever there, and condemns the buildings as unfit for their purpose on account of their low situation and the bad sanitary condition of the premises.

Miscellany.

APPETITES AND PASSIONS.

THE *Lancet* has recently commented, in part, as follows on two pamphlets, entitled respectively:

"'Counsel for Young and Unmarried Men Respecting Chastity,' and 'The Proper Discipline to be Observed by Married People in regard to Conjugal Intercourse,' and they are stated to be issued 'on high medical authority and with episcopal sanction.' Their object is sufficiently indicated by their titles. The medical authority concerned in the production dwells with suitable brevity upon the physiological aspects of the case and his observations are accurate and to the point. If we cannot speak as highly of the advice emanating from the 'clerical' authority this is not because we do not see that a sincere attempt has been made to do good. We have two or three general observations to submit on the subject, and more than general observations we cannot make, for individual appetites so vary that we do not wish to be the medium for recording any hard-and-fast limits, even while we see the benefit that might accrue to some people from such guidance. In the unmarried, and especially in the young, continence is the noble aim. We do not dwell for the moment (though this aspect is vitally important) upon the narrower and more selfish view of the physical and moral evils which incontinence may produce; we rather assume the higher ground that a man who ruins, or helps to maintain the ruin of, a female is a sinner against the social law of love. Each young man should act as a trustee for the chastity of every woman and should account as a personal insult and degradation any suggestion to mar her highest development into the type of womanhood. This is the ideal attitude towards unchastity, whether it be assumed out of physiological knowledge, out of faith in the beneficent effect of a Divine will, or (best of all) out of a fortunate blend of both reasons. But incontinence besets the married as well as those to whom sexual gratification is morally forbidden. In married life, as members of our profession know only too well, there frequently occurs a reversion to primitive customs. The wife is still too often considered to be largely a mode of sensual gratification to the man instead of a helpmate, entitled to equal respect of her feelings and sense of dignity. This is well known to the medical man, for it is part of the routine of his life to receive confidences of a perfectly intimate character. And his counsel, based upon knowledge that no general laws can be laid down, is always towards moderation. But we would suggest to the Church a reform of the marriage service, which in its present terms encourages the belief that marriage is largely a device for the multiplication of children, and that the wife in this respect is to 'obey' the demands of a husband, however insatiable. Any teaching which appears to support this view can only debase,

rather than elevate, married life. The Law, following in the steps of the Church, gives a carnal interpretation of marriage, and treats the tie as mainly one of sensual meaning, and so the full dignity of conjugal union is missed. We need an equitable and righteous reform, possible only under fresher and purer conceptions, and a more elevated view accordingly of the married state — a state in which the intellectual, moral, social and spiritual affinities between man and wife shall be cultivated and sought, in place of the more debasing notion which is too generally sanctioned by Church and Law, and which largely forms the predominating element in popular views. The Law by the growing recognition of the personal rights of the wife has shown that its purview of married life is becoming larger and more liberal. Medicine plays its part by inculcating moderation. There are ways in which the Church might help."

Correspondence.

AN ACADEMY OF MEDICINE.

BROOKLINE, January 25, 1901.

MR. EDITOR: The dedication of the new Boston Medical Library building and the recent anniversary of an old medical society lead me to ask the question if it is not possible that the medical profession may be entering upon a new era of activity and progress. While it can be said with truth that scientific medicine has made extraordinary strides in the last fifty years, it appears to me that during this "period of ether" in some ways our social instincts in Boston have been lulled into a condition of somnolence. We have kept our ideas and feelings in cold storage, making such contributions to science out of this store as circumstances demanded, and then rested satisfied with the slight rise of temperature ensuing.

Our growth on the human side, however, has been less, and while perhaps the mutual relation between the physician and patient is as close and intimate as treatment renders absolutely necessary, something of the old-time sympathy and friendliness has become less apparent. With the profession divided into many specialties, general intercourse among physicians also has assumed a different character and there is less co-operation among us. To some extent this may be inevitably necessary, but I believe not to such a degree as is at present the case. We have developed the scientific at the cost of the more human side of our work. If this state of things is to be overcome, and I believe there is a reaction in this direction, we must fan the flame of social intercourse to bring the members of the profession, old and young, together, and make them to each other something more than men of stone and iron. Before the new Medical Library building was finished, it was less easy to do this, as many will bear witness who attended meetings in the old building. It was a good deal like descending into a tomb to go into the old hall and the general atmosphere struck the chill of the grave into one's bones, affecting the men and even the character of the papers they read, which were often corpse-like enough to suit the surroundings.

In the new building all is different; everything is bright, cheerful and suggestive of hope. It is a place where all medical men may meet together, not as icicles, but as brothers of one profession. As, however, there are many of them who have little acquaintance with one another, it is important that there should be distinctly social occasions where men may have a chance to eat something, and smoke and have a practical realization that even the most exalted men of our profession are not too good for human nature's daily food and not even above small beer and cheap cigars. Above all, let us not become pedants and scientific machines unable to give utterance to anything that will not stand the test of laboratory analysis.

I hail the suggestion of an academy of medicine with delight, as I believe that it can accomplish the purpose on the one hand of improving the general standard of scientific excellence of those who lag behind, and on the other, of bringing to the surface and making potent those social feelings and instincts which have been too prone to lie dormant in another large part of our profession.

I hope that no old society will be rehabilitated, but rather that the academy will be a new movement free from old prejudices and representative of all that is best morally, socially and scientifically. It should contain all of those men who by high aims and serious work show themselves to be worthy members of the profession. To belong to it should not only be an honor but a joy as well, which cannot be said of membership in some of our societies.

One useful purpose the academy can serve is to assume some of the financial burdens of the Medical Library, which must be considerable if it is to go on developing. I believe if properly organized it could raise a large fund, and I hope this side of the matter will receive due consideration in its formation. Let an endowment fund of not less than $50,000 be guaranteed at the start. If subscribers can be allowed a period of time like five years to complete their subscriptions, it will be more possible to obtain such an amount.

Very truly yours,
WALTER CHANNING, M.D.

KIRKES' HANDBOOK OF PHYSIOLOGY.

CAMBRIDGE, MASS., January 27, 1901.

MR. EDITOR. — I have noted Dr. Harris's letter, "*Re* 'Kirkes' Handbook of Physiology' in America," in last week's number of the *Boston Medical and Surgical Journal*. Dr. Harris could not have read the reviews carefully or he would understand "that the gloomy forebodings of your reviews" — when the statement was ventured that "probably in a few years this publication will be a thing of the past" — did not apply to "Kirkes' Physiology" as produced by Professor Halliburton, but to the "Baker and Harris" edition produced in this country. It has already been pointed out that this edition (Baker and Harris) is already a "thing of the past" in England. May the good work continue!

Yours faithfully,
ALLEN CLEGHORN, M.D.

[We can give no more space to this subject. — ED.]

METEOROLOGICAL RECORD

For the week ending January 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...13	29.98	26	31	21	71	62	66	N.W.	N.W.	12	8	C.	C.	
M..14	29.98	24	30	18	84	85	84	W.	S.W.	7	8	C.	O.	
T..15	29.87	34	38	30	96	86	91	S.E.	S.	10	9	O.	O.	.03
W..16	29.72	42	48	37	76	92	84	S.	S.W.	14	17	O.	O.	.02
T..17	†29.62	38	44	32	73	100	86	W.	N.	9	8	O.	N.	.01
F..18	†29.61	20	32	8	†9	44	66	N.W.	N.	12	23	O.	C.	.04
S...19	30.27	4	10	1	60	40	50	N.	N.W.	8	14	O.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 19, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1649	377	19.03	20.66	1.33	.67	2.97
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	477	93	21.42	16.59	.42	2.52	3.57
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	212	67	22.65	18.88	.47	2.36	3.77
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	145	46	26.91	18.63	1.38	3.45	4.14
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	80	24	18.75	16.25	—	2.50	6.25
Boston	560,892	229	54	23.16	15.73	1.31	.43	7.86
Worcester	118,421	35	15	14.30	28.60	—	2.86	—
Fall River	104,863	34	12	17.64	14.70	—	—	2.94
Lowell	94,869	40	11	12.50	22.50	—	—	2.50
Cambridge	91,886	36	12	19.46	11.12	—	—	8.34
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,559	26	9	26.88	11.52	—	—	3.84
New Bedford	62,412	33	12	15.15	24.24	—	—	—
Springfield	62,059	14	3	7.14	21.42	—	—	—
Somerville	61,643	—	—	—	—	—	—	—
Holyoke	45,712	18	6	22.24	22.24	—	—	5.56
Brockton	40,063	8	1	25.00	37.50	—	—	—
Haverhill	37,175	6	1	—	16 67	—	—	—
Salem	35,656	13	4	15.3	7.69	7.69	—	—
Chelsea	34,072	13	1	—	—	—	—	—
Malden	33,664	7	3	14.29	14.29	—	—	—
Newton	33,587	11	5	18.18	18.18	—	—	9.09
Fitchburg	31,531	10	7	10.00	—	—	—	10.00
Taunton	31,036	14	2	14.28	21.42	—	—	—
Gloucester	26,121	8	2	37.50	—	—	—	37.50
Everett	24,336	5	3	20.00	20.00	—	—	—
North Adams	24,200	4	—	25.00	25.00	—	25.00	—
Quincy	23,899	1	1	100.0	—	—	—	—
Waltham	23,481	7	—	57.16	—	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	6	2	—	33.33	—	—	—
Medford	18,244	9	2	—	33.33	—	—	—
Newburyport	14,478	9	2	11.11	11.11	11.11	—	—
Melrose	12,962	5	1	20.00	—	—	—	20.00

Deaths reported 3,204; under five years of age 787; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 643, acute lung diseases 612, consumption 337, diphtheria and croup 129, diarrheal diseases 39, typhoid fever 39, scarlet fever 31, whooping cough 8, measles 6, cerebrospinal mengitis 5.

From whooping cough Philadelphia 2, New York, Pittsburg, Boston, Worcester, Malden and Newburyport 1 each. From cerebrospinal meningitis Baltimore, Pittsburg, Worcester, New Bedford and Everett 1 each. From scarlet fever New York 22, Boston 3, Philadelphia and Pittsburg 2 each, Baltimore and Salem 1 each. From measles New York 3, Boston 2, Pittsburg 1. From typhoid fever Philadelphia 12, New York 11, Baltimore and Pittsburg 5 each, Providence 2, Boston, Worcester, Lynn and North Adams 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 5th, the death rate was 17.5. Deaths reported 3,964: acute diseases of the respiratory organs (London) 330, diphtheria 79, whooping cough 71, measles 56, fever 47, diarrhea 37, scarlet fever 33.

The death rates ranged from 8.7 in Derby to 22.5 in Liverpool: Birmingham 17.4, Bradford 17.2, Bristol 14.6, Cardiff 13.9, Gateshead 18.6, Halifax 18.1, Hull 15.9, Leeds 20.3, London 17.9, Manchester 21.5, Newcastle-on-Tyne 15.2, Norwich 11.2, Nottingham 15.3, Plymouth 17.6, Portsmouth 12.0, Salford 20.1, Sheffield 21.4, Sunderland 17.1, Swansea 16.5, West Ham 15.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 26, 1901.

C. N. FISKE, assistant surgeon, detached from the "Wheeling" and ordered to the "Mohican" when the former is put out of commission.

H. O. SHIFFERT, assistant surgeon, appointed assistant surgeon from December 26, 1900.

D. N. BERTOLETTE, medical inspector, detached from the Medical Examining Board, Washington, and ordered home January 31st.

A. C. H. RUSSELL, surgeon, ordered to Washington, for duty as a member of the Medical Examining Board, January 31st.

W. H. RUSH, surgeon, ordered to the Pensacola Naval Station for recruiting and other duty.

R. K. SMITH, passed assistant surgeon, detached from the "Pensacola," February 2d, and ordered to the "Wisconsin," February 4th.

M. V. STONE, assistant surgeon, detached from the "Solace" and ordered to the "Isla de Luzon."

H. H. HASS, assistant surgeon, detached from the "Isla de Luzon" and ordered to the "Solace."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 24, 1901.

PURVIANCE, GEORGE, surgeon. Granted leave of absence for two days. January 18, 1901.

WILLIAMS, L. L., surgeon. Granted leave of absence for three days. January 21, 1901.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for two days from January 18th. January 17, 1901.

CRAIG, R. C., acting assistant surgeon. Granted seven days' extension of leave of absence. January 22, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall at the Medical Library Building, 8 The Fenway, on Monday, February 4th, at 8.15 P. M.

Papers: Dr. Henry Jackson, "Disease of the Myocardium."

Dr. Horace D. Arnold, "The Condition of the Myocardium as Affecting Cardiac Murmurs."

ARTHUR K. STONE, M.D., *Secretary*, 637 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, February 6, 1901, at 8.15 o'clock.

Papers: "Relief Afforded by Operation on Abdominal Adhesions," by Dr. A. T. Cabot.

"Report of Cases of Sarcoma," by Drs. Munro, Blake and Lund.

F. G. BALCH, M.D., *Secretary*, 279 Clarendon Street.

RECENT DEATHS.

AUGUSTINE SHURTLEFF, M.D., M.M.S.S., died in Brookline, January 27, 1901, aged seventy-four years.

CHARLES WISTAR STEVENS, M.D., M.M.S.S., died in Charlestown, January 25, 1901, aged sixty-four years.

ERSKINE E. HAMILTON, M.D., died in Springfield, Mass., January 24th, at the age of thirty-four. He was graduated from the College of Physicians and Surgeons, New York.

HENRY J. HERRICK, M.D., a well known physician of Cleveland, O., died January 28th. He was for many years a professor in the Medical Department of the Western Reserve University

JAMES WATSON STRONACH, M.D., of New York, died in Belleville, N. J., on January 23d, of cardiac disease, aggravated by influenza. He was born in Forres, Scotland, in 1834, and was graduated from the Medical Department of the University of the City of New York in 1872.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Laboratory of Pathology of the University of Buffalo, Medical Department. No. 1. 1900.

Report of the Surgeon-General of the Army to the Secretary of War for the Fiscal Year ended June 30, 1900. Washington. 1900.

Uterine Tumors: Their Pathology and Treatment. By W. Roger Williams, Fellow of the Royal College of Surgeons. New York: William Wood & Co. 1901.

Introduction to the Study of Medicine. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris, etc. Authorized translation by M. S. Gabriel, M.D. With additions by the author. New York: D. Appleton & Co. 1901.

Experimental Research into the Surgery of the Respiratory System. An essay awarded the Nicholas Senn Prize by the American Medical Association for 1898. By George W. Crile, A.M., M.D., Ph.D. Second edition. Philadelphia: J. B. Lippincott Co. 1900.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. I. General Therapeutic Considerations; Prescription Writing; Remedial Measures other than Drugs; Preventive Medicine; Diathetic Diseases and Diseases of Nutrition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

A Series of Original Papers on Gonorrhea.

GONORRHEAL INFECTION.[1]

BY BENJAMIN TENNEY, M.D., BOSTON.

IN the last few years intelligent opinion has settled on the gonococcus of Meisser as the bacterial agent in practically all cases of urethritis. The consideration of non-gonorrheal urethritis by Guiard, published in the French journal of genito-urinary diseases for 1897, leads him to a conclusion which I am sure we will all endorse, namely, that every case of urethritis which lasts more than a few days is, or at least may have been at the start, a true infection by the gonococcus. Certainly today no patient's story of "strain" or error of diet will be accepted as conclusive evidence of a non-gonorrheal urethritis, and no man familiar with laboratory methods will accept any sort of argument short of a most careful bacteriological examination.

That mild and transient inflammations of the urethra, with purulent discharge, do occur in the course of acute fevers, attacks of gout or articular rheumatism, and are acquired from instruments or from sexual contact must be admitted. I have seen 2 cases recently, with a slight mucopurulent discharge lasting three and four days, in which I was unable to find any organisms which decolorized by the Gram method. The pus cells contained large diplococci which resembled, both in size and in their growth on agar, diplococci which I have obtained from male urethræ which had never been infected by the gonococcus.

Guiard reports cases of typhoid fever, secondary syphilis, malaria, rheumatic fever and gout where satisfactory examinations were made and no gonococci found.

In no other reported cases, whether attributed to mumps, diabetes, tuberculosis, or articles of diet, does he consider the claim proved. In discussing non-gonorrheal urethritis due to sexual contact, he mentions 1 case where a man contracted a urethral inflammation, lasting a short time, showing no gonococci, from a woman who showed a few typical gonococci in leucocytes from her urethra and posterior cul-de-sac of her vagina. He quotes 30 cases described by Ranzier, Bockhardt, Legrain, and others where the urethritis lasted but a few days and showed no gonococci. In 1 case the bacillus coli communis was found, and in the others a variety of cocci, one of which after being isolated in pure culture produced a transient inflammation in several healthy urethræ. He personally has never seen an acute case where he felt sure the attack was not primarily due to the gonococcus, though the infecting material may not have contained the living germs but only some substance produced by their growth, which has the power of poisoning the urethral epithelium and destroying its resistance to less virulent germs.

As to the progress of gonorrheal infection on mucous membranes, I have found nothing of value in the literature since the work of Bumm published in 1885 and that of Legrain in 1888. They agree that the growth of the organism may be divided into three stages: (1) On and in the epithelial cells; (2) in the subepithelial layer and leucocytes, where they develop very rapidly; (3) in the epithelial cells again, as the growth of a sort of dam of new tissue beneath them furnishes a layer unfavorable to the development of the gonococci. This certainly agrees with the smears which we get in the different stages, and with the pathological description of a urethra which Bockhardt obtained ten days after inoculation with a pure culture. Bumm's work was done on the conjunctival mucous membrane of babies infected during delivery, and the specimens were from one and a half to thirty-two days after birth. After twelve hours the organisms were in the epithelial cells and a few leucocytes were appearing. From the third to the sixteenth day the gonococci were in the pus cells and subepithelial tissue, on the eighteenth day only in the superficial layer, on the twenty-third day a few in edges of the most superficial cells, on the twenty-fifth day only on surface and in detached epithelium, and on the thirty-second day he found no gonococci.

The persistence of the infection is a matter of great importance and also a matter where the greatest care in diagnosis is necessary. In the acute stage diplococci in the pus cells can be taken to represent gonococci with almost any bacterial stain, and the resulting error will be slight and not important. In the declining stage, when pus cells must be found on the threads or by sedimentation, the greatest accuracy in staining by Gram's method is essential. Many men are reasonable and the reasonable man will take no chances of infecting others so long as knows the probability of his doing so. Moreover, there is always the possibility of his reinfecting himself. The often quoted statement, "once infected, always infected," was made by the Noeggerath who spread abroad those remarkable statistics of New York men and women, and the statement is entitled to about as much consideration. While we know that this germ in some individuals will reproduce itself for months and even years, in some pocket of the urethra, prostate or seminal vesicle, it usually disappears within three to five months. It must always be remembered that the normal urethra which has never been infected by gonococci carries diplococci which very closely resemble the gonococci when stained with the ordinary methyl blue. I have never been sure of the difference under these conditions.

The persistence of the infection appears to be due to the same constitutional conditions which favor the infection. One of my patients in whom the undoubted gonococci could be found two years after his last infection, finally married with my consent and has a healthy wife and fine children, but has become a sufferer from periodic attacks of gout. Another, who came to me eighteen months after infection, had a slight consolidation in the apex of one lung, as well as a gleety discharge containing gonococci. Both disappeared after a few months in Colorado. Cases where the use of alcohol is persisted in are well known to run a long course, and the first instruction given to every gonorrheal patient in the clinics as well as in the office is "no rum."

But outside these three conditions which are well recognized as favoring its continuance, the usual result of careful treatment is a complete cure so far as the possibility of harm to the patient or his family goes.

Every practitioner knows of men who have had

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

gonorrhea at some time, and who have married and had healthy wives and clear-eyed children. If this were not the rule, I fear the proportion of pus tubes would be even greater than at present, both in private practice and clinics. That sterility may and often does result from a gonorrheal infection is a simple and reasonable proposition, but sterile marriages are not necessary sterile because the wife has been infected by the husband. He may have became incapable of impregnating by the obliteration of his seminal canals, and then have starved out his gonococci, before marriage. I cannot believe, nor do the gynecologists with whom I have talked believe, that infection of a wife by a husband who has had no visible discharge for months is at all a common event. Nevertheless it undoubtedly has occurred in some cases, and I regard it a part of the duty of the doctor who treats men with this disease to have a square talk with every patient, and fully explain why he ought to make sure by as competent an examination as he can get that he is completely free of his gonococci before he marries, no matter when that may be.

The most interesting recent work has been done on toxin production by the gonococcus. Christmas, in the *Annals of the Paris Pasteur Institute* of May last gives the latest results of his and others' work. He cultivated gonococci on a medium composed of three parts of human ascitic fluid with one part of rabbit bouillon. He produced a poison, .002 of a cubic centimetre of which, diluted with salt solution and injected into the brain of a guinea pig, kills the pig in five to seven hours, while the same bulk of salt solution without the poison produces hardly a symptom. The total bulk of the injection was always .05 cubic centimetre. Smaller doses produce death after a longer time, or else a form of intoxication from which the animal recovers with a certain acquired immunity to the poison. This immunity can be increased by successive doses until the serum of the animal's blood contains an antitoxin which can be used to neutralize the toxin injected into a fresh animal.

A year ago he had an antitoxic serum which neutralized two hundred and fifty times its bulk in fatal doses. This neutralization he accomplished by mixing the two at ordinary temperatures, three or four hours before injection, by injecting both toxin and serum into the brain at the same time, though not necessarily into the same hemisphere, or by injecting the serum within three days before the toxin. His antitoxin has no effect when injected after the toxin. He injected 2 cubic centimetres of a one-tenth dilution of this toxin into a human urethra and allowed it to remain two or three minutes. It produced a burning sensation and was followed by a mucopurulent discharge without gonococci lasting a few days. It remains to be seen whether this work has any practical value to the human animal. As the damage and discomfort to the ordinary individual appear to be due more to the marvellous fertility of the organism than to its toxin-producing power, one would think the usefulness of an antigonotoxin would be limited to the complications of gonorrhea which are accompanied by constitutional symptoms, but time will show.

Another matter of great interest in considering this infection is the proportion of the community which becomes infected at some period of life. For obvious reasons this becomes a mere matter of estimation, and the estimates vary greatly. Noeggerath is quoted as having claimed that in New York City 800 out of every 1,000 men suffer from this infection. Further, that 90% of these are married men, and that 3 out of every 5 married women have become infected. This is absurd on the face of it. Another Continental writer says that in the large cities 10% of the married men have chronic gonorrhea and another 10% acquire it after marriage. From this he computes in some way that 5% of all married women become infected.

Still another found 10% of 1,930 gynecological cases suffering from the effects of the disease, and in a later series of 161 cases 18% were found infected. This leaves a margin of 8% of those who were infected but not suffering. Let us suppose that 18% of all his hospital and private cases were infected, we have still to inquire what proportion of the women of his town were gynecological cases. If half of them could be classed as such, the total proportion of women infected would be 9%, which may be a fair estimate for a Continental city.

Another estimation comes from my own experience. In a country college class of 80, where I had rather exceptional opportunity for knowing the personal life of every man, I knew of 4 who contracted gonorrhea. If we double this to cover men whose condition I did not know, which would be very liberal, and then allow that as many more have contracted gonorrhea since their college days, we have a total of 16, or 20%. These men would be fairly representative of the native born population of our country — some from city families of large wealth, most from families of comfortable condition, and a few who were working to pay their own way through.

Men who are especially interested in this subject can hardly help overestimating the proportion of cases of gonorrhea, and even those who treat these cases from the standpoint of the surgeon or general practitioner are prone to forget the great mass of mankind who require the services of neither until the time comes to die decently and in order. My present impression is that 20% of the males and 5% of the females of the community may have become infected at some time, but certainly no more. I hope to have some more reliable statistics later, bearing on the proportion of males infected, but at present it is all a matter of approximation to the correct figures.

With most of the contagious diseases a period of immunity follows the attack, but with this disease the common impression is that the opposite is true. There is little in literature and nothing in the history of my own patients which bears exactly on this point. The only reference made to this is in some experimental work of Judassohn, who introduced pus from a fresh gonorrhea into six urethræ which were in the chronic stage. Of these two only started afresh.

Without question gonorrhea resembles other bacterial diseases in the resistance offered by different individuals to its progress and even to its onset. Some individuals lead promiscuous lives for years and escape infection, even having contact with immunity where others acquire gonorrhea. Some individuals acquire a gonorrhea, have no complications, and regard themselves cured of a disease no worse than a hard cold in four or five weeks. Others acquire a disease which in onset, incubation and bacterial diagnosis differs in no demonstrable way from the preceding type, and yet they carry a mucoid discharge or shreds in the urine, showing pus cells with gonococci,

for months. In most cases the gonococci probably are confined to the urethral tissues, while in others they escape by the blood or lymph channels to find lodgment in some joint or tendon sheath, or even in the heart. Chance is the lack of reason usually assigned to cover these conditions, but there is more than chance in it. It seems to me a reasonable proposition that the same conditions which favor the persistence of the disease, and stimulate the pathological process, should also favor the infection.

The chief conditions which we recognize as having this power are the use of even moderate amounts of alcohol, sexual excitement, a tendency to gout or rheumatism and tuberculosis. The use of alcohol has especially interested me. I have never had a gonorrheal patient who was a total abstainer and rarely one who did not admit an excess of alcohol at the time of his infection. This, of course, can be reasoned out in two ways. Without an excess of alcohol a man's moral sense, or his prudence, would keep him from exposing himself as he does when he has the excess. But I cannot help believing that alcohol in the circulation or in the urine affects the urethral epithelium and partially destroys the normal resisting power of the cells. How else can we explain the fresh start which a declining gonorrhea takes when the patient fails to follow our advice to "let rum alone"?

In the July number of the *Journal of Experimental Medicine* for 1896, Abbott reports the results of his work on the influence of acute alcoholism on the normal vital resistance of rabbits to infection. He administered alcohol before and after inoculating the animals with pure cultures of human bacteria, using the bacillus coli communis, the streptococcus and the staphylococcus aureus. Throughout his experiments "the alcoholized animals not only showed the effects of inoculation earlier than did the non-alcoholized rabbits, but in the case of the streptococcus inoculations the lesions produced were much more pronounced than are those that usually follow inoculation with this organism." Some preliminary work of my own on the infection of rabbit urethra with gonorrheal pus has been very significant in its results, though as yet not conclusive. But if by administering alcohol in doses sufficient only to produce a mild intoxication we can diminish animal resistance to human infections, it is certainly not a wild deduction that the same process occurs in man. I would not maintain that alcohol is the only reason for the usual human susceptibility to this organism, but I do believe that it has an influence which is too little recognized at present.

THE BACTERIOLOGICAL DIAGNOSIS OF THE GONOCOCCUS.[1]

BY OSCAR RICHARDSON, M.D., BOSTON,
From the Clinico-Pathological Laboratory of the Massachusetts General Hospital.

THE following paper presents the views held in the Laboratory of the Massachusetts General Hospital in regard to the bacteriological diagnosis of the gonococcus.

Owing to the absence of Dr. James H. Wright, the director of the laboratory, it has devolved upon me to state what those views are.

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

For practical purposes the gonococcus may be identified with a reasonable degree of certainty in suspected gonorrheal pus by cover-glass examination. This method of identification depends upon the fact that the gonococcus differs from the ordinary pus cocci in being decolorized by Gram's method of staining. Its morphology and its position inside the leucocytes are by no means diagnostic, for other cocci may be found inside leucocytes which are indistinguishable from the gonococcus in shape. The important diagnostic point, therefore, for the gonococcus is its property of decolorizing by Gram's method. The other points, of morphology and position inside the leucocytes, are not necessarily characteristic. It has been claimed that in gonorrheal pus cocci may be found which decolorize by Gram's method, and which are not gonococci, but we have never seen such microorganisms.

The application of the method of cover-glass examination combined with Gram's method of staining for the identification of the gonococcus is a simple manipulation, and the details of the method need not be repeated here, but it requires some experience on the part of the person doing it, or it may lead to erroneous observations. The method must be applied with certain precautions which, as a rule, are apt to be neglected. Practically the most important precaution is to smear the pus properly on the cover glass. Usually it is too thick.

In general, it may be said that the best preparations are those obtained by scraping off the pus from the cover glass as much as possible with a platinum loop or knife point, after it has been placed thereon. This procedure spreads out the leucocytes in a thin film, allows the reagents to act well and gives a clear and definite picture under the microscope.

Another important precaution to be observed is to be sure that the aniline oil gentian-violet solution has not decomposed. This solution should not be used when it consists simply of a clear fluid and a brown sediment. To avoid errors in this regard, the solution should not be more than two weeks old.

So far we have only considered the recognition of the gonococcus in gonorrheal discharges from the standpoint of the practical man. From the so-called scientific standpoint, we cannot consider the cover-glass examination as being conclusive. The results of the cover-glass examination from this point of view must be controlled by cultures and it is necessary to isolate the suspected coccus and further prove its identity by the determination of its cultural peculiarities.

The use of cultures for the determination of the gonococcus may be considered also to have a certain value over the cover-glass examination alone, because it might enable us to determine the presence of the gonococcus when it is present in very small numbers. Culture methods have been applied to the solution of the question of the infectious nature of gonorrheal shreds with more or less success. We have had no practical experience with this subject, but we think that we are safe in saying that a negative result with cultures from gonorrheal shreds by no means excludes the presence of gonococci in them.

From the standpoint of the pathologist, the chief interest today attached to the gonococcus is the rôle it plays in inflammatory processes, other than in gonorrhea. The identification of the gonococcus in pyo-

salpinx, arthritis, tenosynovitis, endocarditis, and in peritonitis requires more than the simple cover-glass examination and the application of Gram's method of staining. In these conditions the pathologist demands that the suspected organism be isolated in pure culture and its peculiarities in cultures shown to agree with the well-known peculiarities of the gonococcus. If cultures are not applied, the results of cover-glass examinations, although agreeing with the idea that the gonococcus is present, amounts from a scientific standpoint to little more than a probability. In other words, it does not suffice to prove that a given case of arthritis is due to infection with the gonococcus by showing that Gram decolorizing cocci inside of pus cells are present in the exudate, but it must be shown in addition to this that these cocci will grow only on special culture media and it must be rigidly determined that they will not grow on ordinary culture media.

Furthermore, it must be shown that these colonies on special culture media have certain appearances, and that the micrococci composing such colonies are decolorized by Gram's method and have a decided tendency to group in fours. The test of the behavior of the cocci, so isolated, towards the Gram staining reaction is of great importance, and is to be applied with certain precautions.

The first of these precautions to be observed is that the culture must not be more than forty-eight hours old, because some Gram staining cocci in older cultures will be observed to be decolorized when treated by Gram's method. The second is that the cover-glass preparation should not be made too thick, and the judgment, as to whether the coccus decolorizes or not after treatment with Gram's method, should be made only from portions of the field where the cocci are well separated from one another and not from portions where the cocci are aggregated in masses. This precaution is necessary because, where the cocci are aggregated in masses, those in the interior of the mass escape the action of the reagents. These criteria for the identification of the gonococcus in cultures must be rigidly carried out in order to avoid a very easy mistake in bacteriological diagnosis. In brief, no culture of a micrococcus is to be regarded as a culture of the gonococcus unless the organism grows only on special media in colonies of a certain appearance, decolorizes by Gram's method and shows a decided tendency to grouping in tetrads.

The necessity of rigidly subjecting the suspected gonococci, obtained in cultures, to these criteria has been emphasized by a recent observation of a case of acute arthritis of the knee clinically of gonorrheal origin. Cover-glass examination of the exudate showed Gram decolorizing cocci inside of the pus cells which were regarded at the time as gonococci. The cover-glass examination of the vaginal discharges also showed micrococci inside pus cells decolorizing by Gram. At the time the pathologist had no doubt but that the case was one of gonorrheal arthritis. The cultures, however, from the exudate in the knee showed an organism which had a considerable resemblance to the gonococcus, so much so, indeed, that it was only after it had been cultivated through a number of generations and had been carefully subjected to the foregoing criteria that the pathologist was compelled, against his will, to decide that the coccus was not the gonococcus. It was found to grow on ordinary culture media. Its colonies were not identical with those of the gonococcus, but sufficiently so to come within bacterial variations. It decolorized by Gram like the gonococcus, but it did not show the decided tendency, possessed by the gonococcus, to group itself in fours.

Concerning the relationship of this organism to the gonococcus, the pathologist has nothing to offer, except to say that he does not think that this organism should be regarded as a variety of the gonococcus.

In conclusion, a word might be said concerning the frequent negative results of the bacteriological examination of inflammatory conditions supposed to be due to the gonococcus. The common experience in cultures from pyosalpinx, arthritis and similar conditions is that no bacteria grow on cultures on special media, nor are any bacteria found by cover-glass examination. We are inclined to explain these results as being due to the destruction of the gonococci after their arrival in the tissues, rather than as being due to the results of a toxin transported there from a distance. It seems reasonable to suppose that the gonococcus might set up a very active inflammation and an accumulation of inflammatory products and then die out, leaving, however, these products as an irritating body to continue the inflammatory process.

Moreover, we know that the bodies of dead gonococci have irritating and pyogenetic properties. Certain it is that in many instances of arthritis and of pyosalpinx the most painstaking examination may fail to show any sign of the gonococcus or other bacteria.

TREATMENT OF ACUTE GONORRHEA.[1]

BY FRANKLIN G. BALCH, M.D., BOSTON.

THIS is not to be an elaborate article on acute gonorrhea, but rather a short paper telling of some of the methods from which I have seen results.

As to prevention. — Some people have told me that after a doubtful connection they always take an injection of a weak solution of permanganate of potash, and that they never become infected when they have done so. For a person who understands how to take an injection, and who can be relied upon not to try it when under the influence of liquor, this may be a safe procedure, but for the ordinary run of such people it is unwise and liable to be productive of more damage than good. I have had patients come to me the day after and have irrigated the urethra myself with permanganate, 1 to 4,000, or a 4% solution of boracic acid. In none of these cases has a gonorrhea followed, but I am very doubtful whether it would have anyhow. Theoretically it should be an extra safeguard, for the gonococci would not then have penetrated the cells and could easily be reached by an antiseptic.

If, however, a person has been infected and comes for treatment with the very first appearance of any moisture at the meatus, or perhaps only a slight tickling sensation, what advice should he receive? There are so many sides to the question that I generally talk to him somewhat as follows after getting, if possible, a positive slide. Gonorrhea is a disease which it may take anywhere from three weeks to three years or more to recover from. Sometimes it can be aborted.

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

If successful, that means that a patient is under treatment for from two to six weeks. It is best to treat the case twice a day during the first week or ten days, and the patient uses an injection himself two or three times a day for two or three weeks more. By this method the patient will probably be more comfortable, have less discharge, and get well somewhat more quickly and with less danger of complications. It is not certain that the disease will stop short. It probably will not. If a patient thinks that he cannot give up so much time at first, I tell him that I can give him some medicine and see him perhaps twice or three times in the first week, and then once a week for as long as it takes to effect a cure.

There are many advocates of very many injections in abortive treatment. Personally I have come to believe in only three, nitrate of silver, permanganate of potash and protargol. In the very early stages the disease is confined to the anterior urethra and an injection that will reach that part of the canal is all that is required. I have been more successful with nitrate of silver than with anything else, used as follows: First, have the patient empty his bladder. This washes out the urethra as far as any discharge goes, but leaves some urine in it. As urine combines with nitrate of silver and precipitates some of the silver, I next irrigate with plain boiled water. An ordinary McElroy glass syringe with a blunt end serves very well for this purpose. Strip the penis gently to get out all the water possible. Next inject a syringeful of the silver solution. If the lips of the meatus are puffy, I use a solution of a strength of 1 grain to the ounce. If there is no evidence of very active inflammation I use 2 grains to the ounce. This should be held in for about a minute, when it should be allowed to escape and the urethra should again be washed out with water. Do this twice the first day. Increase the strength of the solution to 2 grains to the ounce the second day, and the next day increase to 3 grains to the ounce. Higher than this it is unwise to go. A few years ago I used to increase the strength of the solution until I was using from 6 to 8 grains to the ounce, but I had 2 cases which had acute exacerbations follow the higher strength. This has never happened where I did not go above 3 grains. The weaker solutions are just as efficient. In the cases I speak of there was scanty urine, backache, headache and a temperature of 103° to 104°. They had to go to bed for several days. There is usually some scalding with the first one or two injections, but nothing unbearable, and after two days patients usually do not complain. Scalding on micturition often ceases after the first injection. The discharge becomes thin and watery after a few days, and often ceases after five or six days. It returns if the treatment is then discontinued, so that it is best to continue the injections for several days more, gradually decreasing the amount of nitrate of silver. If at the end of ten days there is no discharge, let the patient use an injection of permanganate of potash, 2 grains to 16 ounces of water. He should begin by using it twice a day and continue to use it for two weeks or so. When permanganate of potash is used from the beginning instead of nitrate of silver it is best to irrigate with a large amount of a weak solution rather than with a little of a stronger one. One to 4,000 is strong enough. In my hands a Kiefer nozzle has not been satisfactory, and I use a No. 6 English soft-rubber catheter attached to the nozzle of a douche bottle. With the bottle at an elevation of not more than 3 feet the solution has not force enough to get back into the bladder, but flows forward very readily around the small catheter. A soluble lubricant should be used for the catheter. A quart of this solution as hot as can be borne comfortably should be allowed to flow in and out, and where possible it should be done twice a day. This should be kept up for ten days, and then the patient should take injections himself for ten days longer.

Where it is impossible to see a patient as often as these two methods require protargol is a safe injection to let him use himself. A ½% solution is as strong as it is best to begin with, and if there is any great amount of scalding this should be diluted. An ordinary 2-drachm syringe should be used and the injection retained for at least three minutes. Ten minutes is better, but few patients will do it. This should be repeated three times a day for the first ten days, and then at longer intervals until a cure is effected.

With all three of these methods it is often necessary to give a mild astringent injection at the end to get rid of the final glueing together of the lips of the meatus in the morning. For this purpose the following prescription is useful: Sulphate of zinc from 4 to 8 grains, fluid extract of hydrastis ½ ounce, and rose water up to 4 ounces. Strong solutions of silver nitrate applied through an endoscope, or strong solutions of permanganate or corrosive sublimate by injection will rarely cut a gonorrhea short. They are very painful, are apt to lead to serious complications, and are so seldom of any benefit that they are justifiable only under extraordinary circumstances.

If the patient presents himself only after the disease has been fully developed for several days, and there is a thick yellow discharge with scalding, painful erection, etc., there is no use in trying to abort the trouble. If an injection is used at all it should be very mild. It is usually safest to give no local treatment for a time, but rely on medicine. The remedies which are useful, or are said to be useful, in gonorrhea are reckoned by hundreds. As the gonococcus grows in an alkaline medium, drugs to render the urine alkaline would seem to be theoretically contraindicated. The citrate and acetate of potash are useful, mainly, in that they make a patient thirsty. The same result can be accomplished by making him drink water as a medicine. If it does not upset his digestion at least 2 quarts a day should be drunk. Compound salol capsules are good and should be taken after meals and before going to bed. They give about the same results as sandal oil, but without the backache which that so often causes, and they do not as often disagree with the stomach. Methylene blue is also of some use. It is necessary to see that you get methylene and not methyl blue, as the latter has no effect. It is best given in capsules containing 1 grain of methylene blue, 1 drop of oil of cassia, and 1 drop of oil of sandal wood. Three capsules a day is usually as much as a patient can take, and at times the dose has to be reduced to 2 after forty-eight hours. More causes very frequent micturition and tenesmus. The urine is green, and stains the clothing if allowed to come in contact with it. Urotropin has not done as well as it was at first hoped it would. Given in large doses it causes great scalding. Where the bladder has become infected and there is a dirty alkaline urine

it is extremely useful and often accomplishes very prompt results. Salol is indicated in the same class of cases as urotropin, but is not quite as efficient as urotropin as a urinary antiseptic, while it has the same disadvantage of causing scalding when given in considerable amount.

As to diet, if we except peppery and spiced foods there are few things which do harm. A simple diet is best, especially when taking medicine which is liable to upset the stomach. Nothing with any alcohol in it should be allowed, and ginger ale is just as bad on account of the pepper in it. I have seen a case which was doing well lighted up as badly by a bottle of ginger ale as by a bottle of beer.

Other things being equal, the quieter a person keeps the better he will do. Bicycle and horseback riding should especially be avoided. Keeping the bowels open and a hot bath before going to bed lessens the tendency to chordee. It should be impressed upon patients that all sexual excitement is bad for them. They should be told to handle the penis as little as possible, and not keep stripping it to see how much of a drop they can find. A suspensory bandage lessens the liability to epididymitis, and should be worn from the beginning of the trouble. If inflammation should occur, rest in bed and an ice bag give the greatest relief. In patients with a narrow meatus it is often advisable to cut it at the beginning, as it is not possible to give injections satisfactorily unless there is a fairly good opening.

It must always be borne in mind that while an injection can cure a discharge it can also keep one up. In obstinate cases it is occasionally surprising to see how quickly they will clear up when all treatment is stopped. An astringent injection in the early stages of a gonorrhea is unjustifiable. It cannot kill the gonococci nor materially retard their growth. It does often give a false sense of security which later events prove was wholly unwarranted.

The idea that it is not well to do anything for a gonorrhea except give citrate of potash in large doses is fortunately passing away, though in a certain class of dispensary practice I often come to the conclusion that there is a great deal of truth in what one of my instructors once said to me when I asked him why he did not give injections. His reply was, "What is the use? Most of them drink it and the rest squirt it into their bladder."

GONORRHEA IN WOMEN.[1]

BY W. L. BURRAGE, M.D., BOSTON.

AT the outset it is well to bear in mind some of the characteristics of the gonococcus. It has been shown that the gonococcus is somewhat dainty in his diet and habitat. He requires air and he thrives best in an alkaline medium. He lives in columnar and not in pavement epithelium, and, needing oxygen, he does not as a rule go far from the surface. The phagocyte is not the special enemy of the gonococcus, and when the latter ceases to exist it is because he cannot find food and surroundings to his liking rather than because he has been eaten by the phagocyte.

In the course of the inflammatory process set up by the gonococcus the cylindrical epithelium, in which the germ has its home, is cast off and thus the process tends to cease. As shown by Bumm, gonorrhea is essentially a disease of the epithelial layers.

In considering the different portions of the genital tract of the female that are most frequently affected by gonorrhea, we naturally look for those where there is cylindrical epithelium. At the mouth of the urethra are the racemose glands of Skene. These are lined with cylindrical epithelium. In the urethra, which, to be sure, is lined with pavement epithelium, there are mucous crypts which correspond to Littré's glands in the male, and the mucous membrane of the urethra is in folds except during urination, and thus furnishes lurking places for the cocci. The canal of the cervix has many Nabothian glands with walls of cylindrical epithelium, and the glands of Bartholini are also lined in the same way. The vulva, vagina and intravaginal cervix are covered by pavement epithelium, and the vaginal secretion, made acid by the lactic-acid bacteria of Döderlein, is inimical to the life of the gonococcus and other pathogenic bacteria. The uterine canal from the external os to the openings of the tubes is lined with a simple layer of ciliated cylindrical epithelium. In the cervix there is a submucous layer, but in the body of the uterus the utricular glands rest directly on the muscle. These uterine glands are all on the surface, and are shed to a greater or less degree at the catamenia. There are no glands in the tubes, but the walls of the tubes are in folds and are pouch like, thus affording tarrying places for the cocci. The external os, the internal os, and the isthmus of the tube are narrow paths which may serve as barriers to the progress of the gonococcus, so also the neck of the bladder and the sphincter ani assist in shutting out disease from the bladder and rectum.

A majority of authors give the following as the most frequent seats of chronic gonorrhea in the order of frequency: Urethra, cervical canal, Bartholini's glands, uterus, tubes, vulva, vagina, and bladder and rectum. Vulvitis and vaginitis are rare except in certain acute cases and in children. In very young women, in those with delicate mucous membranes and light hair, and where the mucous membrane is succulent, as in pregnancy, gonorrheal vaginitis is more common than it is in women who have intact and firm epithelium in the vagina.

Experimentally, Bumm found that the period of incubation of acute gonorrhea was twelve hours; in twenty-four hours the attack was well established. Clinically acute gonorrhea in the female is much less frequent than in the male. The disease is not, as in the male, always preceded by a period of acute invasion, the symptoms of which necessarily attract the attention of the patient and the physician, and for this reason gonorrhea in woman is often overlooked. The symptoms and signs are for the most part those of subacute or chronic gonorrhea from the start.

The frequency of chronic gonorrhea in women has excited a great deal of discussion ever since Noeggerath published his first paper on the subject in 1872. He stated that 80% of all gynecological cases have latent gonorrhea. Sänger, from an examination of 1,930 cases, both in hospital and in private practice, diagnosed gonorrhea in 12%, and this was in the eighties, after the discovery of the gonococcus by Neisser (1879). Sänger's percentage seems to be a fair one for all cases, and is pretty generally adopted

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

by writers on this subject. In clinics made up largely of prostitutes the percentage of gonorrhea is necessarily higher, whereas in a better class of private practice the percentage is lower.

The diagnosis is made by the history, by the clinical course, by the appearance of the genital organs, and by the detection of the gonococcus in the discharges. Until recently it has been necessary to rely on the finding of the diplococci in the pus cells, using the Gram method of decolorizing. Now the bacteriologists have succeeded in cultivating the gonococcus outside the body on human hydrocele agar, and Neisser and Bröse and other prominent workers in this field are agreed that cultures should take the place of cover-glass preparations in the diagnosis of gonococcus infection.

From the examination of cover-glass specimens taken from a total of 2,107 cases by Schwartz, Goll, Neisser, Weinrich, Van Schaick and Bröse and Schiller, all of the cases giving the clinical history of gonorrhea, the gonococcus was found in 23%.

The relatively small proportion of cases in which the gonococcus is found makes diagnosis by bacterial methods alone extremely uncertain, and the absence of the coccus is no proof that gonorrhea is not present.

O. Bodenstein considers the diagnostic points as to chronic gonorrhea to be as follows: (1) *a.* History of ophthalmia neonatorum in children of the patient; *b.* former ardor urinæ; *c.* gonorrhea in the husband. (2) Disease of Bartholini's glands. (3) A reddened urethral orifice. (4) Erosions of the cervix. (5) Involvement of the urethra.

P. Bröse and H. Schiller think the clinical course more important than finding gonococci in the secretion from the urethra. They found the gonococcus in only 20% of their chronic catarrhal cases. The signs they consider important are swelling of the urethral meatus, stricture of the urethra, condylomata, inflammation of Bartholini's glands, maculæ gonorrhoicæ of Sänger, tissue defects and scars in the vulva, vaginitis maculosa and granulosa.

A great deal of stress has been laid of late on the appearance of the vulva. A reddened and puffy condition of the mouths of Skene's glands, with a small amount of secretion to be expressed from them, is a common condition. Condylomata are present in patients who are uncleanly, but they are pretty constant in gonorrhea also. A purplish areola like a flea bite around the orifice of one or both of Bartholini's glands — the macula gonorrhoica of Sänger — is often seen.

Stricture of the urethra in the female is by no means as rare as it has been supposed to be, and with the frequent use of the cystoscope our ideas of the pathology of the affections of the urethra and bladder are gradually undergoing a marked change. Chronic endometritis — a catarrhal alternating with a purulent form — is very commonly met with, and pyosalpinx is one of the late sequelæ. Gonococci are found in 20% of these pyosalpinx cases. Gonorrheal cystitis and proctitis are frequently seen in the clinics of many observers. More accurate observations with properly conducted bacteriological tests are especially needed in these diseases.

It is important that a patient who is about to be examined for gonorrhea should not cleanse the vulva and vagina with douches, and that she should not have passed her urine for several hours, otherwise it is often difficult to get secretion from the glands and the urethra. It is sometimes better to examine near the menstrual period, because at that time the congestion of the uterine organs increases the discharges, and it is probable that more gonococci are thrown off. Here we may find an explanation for the popular belief that a man will contract gonorrhea from intercourse with a woman during her menstrual period. Relatively few gonococci at the intermenstrual time may be multiplied into many at the menstrual epoch.

Too great care cannot be taken by the physician in examining cases of suspected gonorrhea. After the vulva has been inspected and its condition noted, and after cultures or cover-glass specimens have been taken, the examining finger, preferably covered with a thin rubber cot, should be anointed without contaminating the remaining lubricating medium. I use Lubri-Chondrin from collapsible tubes. It is very important not to introduce a catheter or sound into the bladder or uterus, and before making a rectal examination, the vulva and nates should be carefully cleansed with an antiseptic solution, and the examining hand thoroughly washed and a new cot put on the finger. After use, the instruments and the cots which have been employed should be boiled and the hands given a special washing and scrubbing in an antiseptic solution.

There has been considerable discussion whether there is any such thing as latent gonorrhea. Taylor, of New York, held that the gonococcus dies and leaves behind it a chronic inflammation. Thorburn, of England, studied 81 families in his practice, in which there had been 33% of gonorrhea in the husband previous to marriage. Taking all the cases of abortion, sterility, uterine and pelvic inflammations and living births, he found that the infected showed no difference from the non-infected, and in the pelvic inflammatory cases there was a slight preponderance on the side of those who had not had previous gonorrheal infection.

From a clinical point of view every physician of experience has had in his practice men who have had gonorrhea previous to marriage, and have subsequently had families of healthy children, and their wives have been free from uterine disease, so that in some cases at least gonorrhea must be absolutely cured.

As causative influences in the production of uterine disease, we must not lose sight of sepsis following labor and abortions, especially induced abortions, to say nothing of unclean uterine treatments — often unwittingly septic — at the hands of physicians.

On the other hand, Wertheim, Finger and Haberda proved by inoculation experiments that a chronic gonorrhea can cause an acute gonorrhea in another person. Wertheim thinks that the reason that it is often difficult to identify the gonococcus is because only the young cocci take the stain and the old ones do not. Toulon in 1894 noted a degenerated type of gonococcus, which is unrecognizable by ordinary methods of examination. It was seen in cultures of gonococci which were from seven to fifty-one days old and consisted of a granular and amorphous mass. By transplantation he got characteristic colonies. Even with a culture fifty-one days old, experiments demonstrated that gonococci may be present in gonorrheal threads, and yet may not be recognizable in cover-glass preparations, but only in cultures. He thought with Wer-

theim that a urethra becomes tolerant to the gonococcus, but that the gonococcus does not lose its virulence when transplanted to a favorable culture medium.

J. Judassohn, of Berne, announces the following conclusions as a result of his study of this question: (1) A mucous membrane affected with chronic gonorrhea may react by exaggeration of the inflammation when there is a multiplication of the gonococci which it harbors or when new gonococci are introduced; (2) a mucous membrane affected with chronic gonorrhea may no longer react in case of multiplication of its own cocci, but may respond by a recrudescence of the inflammation upon the introduction of new cocci; (3) a mucous membrane affected with chronic gonorrhea may enjoy a sort of immunity from acute gonorrhea. He says further that we know nothing of the immunity of the organism on account of the existence of gonorrhea; even a continued chronic gonorrhea in one organ does not prevent an acute inflammatory attack in another, for example, acute epididymitis in chronic urethral gonorrhea.

If the following experiments of Wertheim are verified by other observers they will have an important bearing on the question of the inoculability of gonorrhea. A direct experiment from a pure culture of gonococcus from a gleety discharge of two years' standing gave the following results: (1) Attempted reinfection of the original urethra with this culture was always a failure; (2) the culture when transplanted to a coccus-free urethra produced typical acute gonorrhea; (3) infection from this back again to the original urethra gave a fresh gonorrhea, which, after a typical acute course of five or six weeks, again subsided into a chronic gleet. This explains the fact that an apparently healthy subject of chronic gonorrhea may infect his hitherto unaffected wife, and become again infected from her, that is, the gonococcus, by passing through the new culture of the wife, again becomes virulent for the husband.

In answer to the question, When should the physician advise marriage after gonorrhea? Kromayer states that a man may marry when the urethritis is all gone. The gonococcus may be absent, but it is not safe until the discharge has ceased. If the advice is not taken the husband should urinate before coitus, there should be only one coitus in twenty-four hours, and the wife should take a douche after it. Frequent coitus, because of the increased congestion of the sexual organs and the destruction and bruising of the epithelium, increases the danger of infection.

If we are called upon to pronounce when a woman is entirely free from the danger of transmitting gonorrhea, it is at once apparent that we have to face a more complicated problem than we have in the case of gonorrhea in the male, because of the many possible lurking places for the gonococcus in the sexual organs of the female. As a practical matter we may say that a woman is cured of gonorrhea when there are no signs of chronic inflammation about the uterine organs, and when two or more negative cultures have been taken from the urethra and cervical canal.

The treatment of gonorrhea in women cannot be considered at length in a paper of this character. It must suffice to say that the treatment varies according to the structures which are attacked. In the more acute stages, when the parts are hypersensitive, douches and extreme cleanliness are to be advised by way of local treatment; in the chronic stages vaginitis is most successfully treated by cleansing the vagina with an antiseptic solution and packing it with cotton tampons soaked in medicated solutions, or with dry cotton dusted with an antiseptic or non-irritating powder. In this way the folds are taken out of the mucous membrane, and the applications come into most intimate contact with all parts. As a germicide protargol, in solutions of from 1% to 5%, seems to be displacing nitrate of silver as the standard remedy, and has given better results than the many other salts of silver. I have found vaginal suppositories of protargol useful and efficacious, also vaginal suppositories of ichthyol, as well as the use of the latter drug with glycerin on cotton packings.

In the treatment of chronic urethritis applications to the mucous membrane of the urethra through a small cystoscope of solutions of nitrate of silver, protargol and ichthyol, and also the use of urethral suppositories of the same drugs, have given the best results. Stricture of the urethra is best treated by gradual dilatation with urethral sounds, although rapid dilatation, the patient being under ether, has often given satisfactory results. Skene's glands are treated by similar applications made with a fine wire applicator wound with cotton, and in intractable disease of these glands it is necessary to lay them open into the lumen of the urethra.

The treatment of cystitis, endometritis, salpingitis and proctitis due to the gonococcus does not differ from the treatment of these affections when caused by other bacteria.

The treatment of gonorrhea should be persisted in until the disease is thoroughly eradicated.

TREATMENT OF CHRONIC GONORRHEA.[1]

BY GARDNER W. ALLEN, M.D., BOSTON.

In some cases of gonorrhea a more or less copious, thin, mucopurulent discharge persists for a long time in spite of all efforts to control it. There is an absence of subjective symptoms; in fact such cases are often mild from the beginning; the mucous membrane seems flabby and lacking in tone, showing little tendency to respond to remedies. These are cases of chronic diffuse urethritis. They are often aggravated by active local measures and over-treatment must be carefully avoided.

But, ordinarily speaking, gonorrhea may be said to have reached the chronic stage when the inflammation has become localized at one or more points along the course of the urethra. The discharge, commonly called gleet, is very slight, and the urine is transparent, but contains shreds of mucus and pus. The points at which the subsiding inflammation most commonly lingers are the penoscrotal angle and that portion of the pendulous urethra just anterior to it, the bulbomembranous junction, the prostatic urethra and much less frequently the fossa navicularis.

The tissue changes following an acute gonorrhea, which determine the localization of the disease at these points, have an important bearing on treatment. The mucous glands or follicles of the urethra are particularly numerous about the penoscrotal angle and just anterior to it. They are very liable to be involved in the inflammation together with the tissues about them

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

and the entire submucous layer surrounding the urethra, which becomes infiltrated with round cells and shows a tendency to cicatricial contraction. In other words, this is a very common seat of stricture of large calibre complicated with inflammation of the mucous glands. The submucous layer about the deep bulbous portion of the urethra close to the anterior layer of the triangular ligament is also very subject to deposit of granulation tissue with contraction, and here we are more likely to have strictures of small calibre, either soft and easily dilatable or very dense and tough. In the posterior urethra the tendency to stricture formation does not exist, but the follicles of the prostate may be involved and the inflammation not infrequently extends up the ejaculatory ducts into the seminal vesicles.

In the treatment of these conditions the objects to be aimed at are the removal of fibrous deposits, the restoration of the thickened and rigid mucous membrane to approximately its original soft and elastic condition, and the cleaning out of diseased follicles and glands.

The first principle of this treatment is dilatation; dilatation of the anterior urethra to check the cicatricial contraction, cause the absorption of the morbid deposit and open up the follicles so that medicated solutions can penetrate them, and dilatation of the posterior urethra in order to open the follicles of the prostate in the same manner and to stimulate circulation in the passively congested mucous membrane.

Ordinary dilatation by means of sounds is often unsatisfactory, chiefly because in many cases it cannot be carried far enough to accomplish results and because it is apt to cause a good deal of irritation and reaction. To cut the meatus sufficiently to admit large sounds is an operation which, although sometimes necessary, should be avoided if possible. By means of dilators which can be passed through a moderate-sized meatus the urethra can be stretched to a point far beyond what is possible with the largest sounds and yet cause little or no reaction. This dilatation may be done as gently and gradually as need be at successive visits without any of the discomfort caused by passing a snug-fitting sound through a rigid and unyielding urethra, perhaps painfully distending the meatus at the same time.

For the purpose of stretching the urethra the four-branched dilators of Kollmann are the best. A straight instrument is used for the anterior urethra and a curved one for the posterior. In this way only a portion of the urethra is dilated at a time. The urethra is much more tolerant of extreme dilatation at one point than of a less degree applied throughout its length. It is surprising how little pain at the time and how little subsequent reaction are experienced in cases where for special reasons it seems advisable to dilate to what might be considered an extreme degree, that is, to 40 or more. Ordinarily we stop several sizes short of this.

After dilatation the local application of various remedies is effected by means of injections or irrigations, and later the urethra is inspected through the endoscope and local applications made under control of the eye to such points as require them.

The course of procedure in an average case of anterior urethritis would be somewhat as follows: To begin with, when the meatus is very narrow it should be cut to a moderate degree, say to 26 or 28, as the calibre of the dilators with the rubber cover is about 23 or 24, and it should be possible at any time to use a fair-sized endoscope. If the patient object strongly to meatomy, dilatation may be fairly well done with an Otis urethrotome without the knife. First, an endoscopic examination may be made to aid diagnosis. Eroded or granular patches, inflamed follicles and rigidity of the mucous membrane can be plainly seen. With a bulbous bougie any narrowing, if of sufficient degree, can be detected and located. It is well to learn as much as possible of the topography of the urethra before using the dilator, although this instrument also is useful in diagnosis as well as in treatment. It is passed well down and opened by slowly and gently turning the screw. Should there be little or no narrowing of the urethral calibre it can be screwed up easily to a high point without pain. When, however, there is stricture a sense of resistance is noticed and considerable force is required in turning the screw and the patient complains of pain. At this point, of course, we stop and either screw down the instrument and remove it or leave it in a few moments. Having removed it, the urethra should be washed out with a solution of corrosive sublimate, potassium permanganate or anything else that may seem advisable, or we may inject protargol. This drug may be used in these chronic cases in solutions of 10% or even 20% without pain or reaction of consequence, and works extremely well. I generally inject about half a drachm into the bulbous urethra, and while holding the meatus tightly closed, rub it in thoroughly from the outside. For the first few days after dilatation, while the follicles are still wide open, the patient should use an injection of bichloride, silver nitrate or permanganate twice a day. This treatment may be repeated in a week, or the endoscope used, according to circumstances. In case of stricture this must be gradually dilated at weekly intervals until practically done away with before the endoscope will be of much use. For local applications through the endoscope, nitrate of silver in solutions of a strength of from 3% to 10% gives the best results.

In the deep bulbous and prostatic portions the curved dilator is used. When the follicles of the prostate are involved massage is of great assistance. First, the patient passes his water or part of it, and its appearance is carefully noted, for it furnishes the best guide to the progress of treatment. Then, with some fluid in the bladder, either part of the urine held back or a few ounces of sterilized water injected after micturition, the prostate is thoroughly massaged by the finger in the rectum. The patient now urinates again, entirely emptying his bladder. This urine or fluid is also carefully inspected at each visit, especially with regard to the presence in it of the short, ciumpy shreds which come from the follicles of the prostate. Then the posterior dilator is passed and screwed up slowly as far as the patient can bear without discomfort, left in a few minutes, removed, and an injection of permanganate, silver nitrate or protargol thrown in. This may be repeated once a week. As a rule no treatment is required in the intervals.

When the seminal vesicles are involved, stripping or massage of these organs is done in connection with the treatment just described. Sometimes a chronic discharge proceeds from the vesicles alone. In this case treatment is confined to them, and stripping is all that is required.

So it appears that when gonorrhea has become localized in the deeper structures of the genito-urinary tract, energetic measures are called for. Time and perseverance are required. Sometimes little improvement will be noticed, the discharge remaining about the same, being kept up perhaps by treatment. In such cases permanent improvement may be expected after the active local measures have been brought to an end. And in cases of doubt as to whether this local treatment has been sufficiently thorough, it is well to suspend treatment for a time and note how much improvement follows and how permanent it may prove to be.

THE SEMINAL VESICLES IN GONORRHEA.[1]

BY CHARLES L. SCUDDER, M.D., BOSTON,

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SEMINAL vesiculitis may be either acute or chronic. The occurrence of acute seminal vesiculitis during the course of an acute gonorrheal urethritis is rare. In 400 cases of gonorrhea, 160 of which cases were acute, there were 32 cases of prostatitis, 1 case of vesiculitis, and 15 cases of prostatitis and vesiculitis. These were cases observed by Colombini in 1897, and reported.[2]

Direct gonorrheal infection, that is, the extension from the urethra along the ejaculatory duct and into the vesicle, is therefore extremely rare. Such inflammations are very acute and of an extreme type. The contents of the vesicle become purulent, the vesicle wall and the perivesicular tissues are involved, and occasionally the peritoneum, which lies close to the summit of the vesicle, is also implicated. There are a few cases reported in which a general peritonitis has resulted from such peritoneal involvement. One vesicle alone is usually involved in the inflammatory process.

The element of germ infection in these cases is of very great importance. Beside the gonococcus in certain other cases presenting the signs of an acute seminal vesiculitis, the only germ found present has been the colon bacillus. It is probable that infection may take place, therefore, not only by continuity along the surface of the urethra through the seminal duct, but by direct invasion from contiguous tissues, such as the rectum.

The symptoms of acute seminal vesiculitis are almost wholly inflammatory in character, characterized by fever, pain and tenderness. The pain may be referred to the suprapubic region, to the sacrum, to the spermatic cord, to the scrotum, to the kidney, to the bladder, or to the urethra. The tenderness may be referred to the suprapubic region, where muscular rigidity may be evident, or to the region of the seminal vesicles by rectal palpation.

The examination of the urine in these cases of acute vesiculitis is of the greatest importance. While purulent material is collecting within the sac of the vesicle, the acute symptoms are at their height. Immediately upon the emptying of the vesicle the acute symptoms subside, and at this time, when the symptoms have diminished in severity, pus appears in the urine. So that while the acute inflammatory process is at its height the urine may be nearly clear, but it becomes purulent with the decrease of the symptoms and the escape of pus from the vesicular cavity.

The involvement of the perivesicular tissues is determined by palpation of the vesicles by rectum. The vesicles, instead of being easily detected in their swollen condition, are more or less obscured by a very great general swelling in their immediate neighborhood, and the edema or bogginess to the palpating finger extends over a wide area. When pus accumulates in these perivesicular tissues it may find an exit either into the peritoneal cavity or into the bladder, or into the rectum, or it may become absorbed. A few cases of pyemia have been reported which originated in an acute seminal vesiculitis. Along with very acute seminal vesiculitis, the prostate is usually somewhat enlarged, that is, congested, and pressure upon the prostate will cause pain. The maximum degree of tenderness is elicited when pressure is made over the seminal vesicle itself.

Treatment of acute seminal vesiculitis. — At the outset, measures directed toward checking the inflammatory process should be taken. If pus is present it should be evacuated either by incision and drainage through the rectum, or by incision and drainage through the perineum.

Chronic seminal vesiculitis. — Chronic vesiculitis is due either to indirect gonorrheal infection, resulting from an extension to the vesicle of inflammations connected with urethral lesions, the source of which was gonorrhea, or to tubercular infection.

Symptoms of chronic seminal vesiculitis of gonorrheal origin.[3] — No inflammatory symptoms are present. The symptoms are functional or neurotic in character. Complaint is made of perverted sexual desire, irregular seminal emissions and neurotic sensations. Certain mental symptoms may be present in these cases which are quite characteristic.

Many cases of so-called gleet may be found to be due to a chronic seminal vesiculitis, and many cases of chronic seminal vesiculitis may be the occasion of many of the neurotic and hypochondriacal symptoms seen in genito-urinary practice.

The treatment by massage of the vesicles should be instituted before resorting to extirpation. Extirpation of the sac of the seminal vesicle should be reserved for extreme cases, associated with serious or severe subjective symptoms.

The operative routes to the seminal vesicles.[4] — There are three routes by which the seminal vesicle may be reached, the inguinal, the perineal, or the sacral.

The steps of the inguinal operation are as follows. The descriptions are those given by Bolton: (1) Incision over the inguinal canal parallel with Poupart's ligament to scrotum; (2) splitting aponeurosis of the external oblique over the canal, separation of vas, and enucleation of testis; (3) ligation of deep epigastric vessels and incision of transversalis fascia; (4) separation of peritoneum from iliac fossa wall and pelvis and bladder along the course of the vas deferens to the ureter; (5) division of vas, its withdrawal from around the ureter; (6) separation of vas and vesicle from base of bladder and from prostate and their removal.

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

[2] Centrbl. f. die Krankh. d. Harn. u. Sex. Org., 1897, S. 521.

[3] Eugene Fuller: Disorders of the Male Sexual Organs.

[4] Bolton: Journal of Genito-Urinary Diseases, vol. xvii, 1899, p. 551.

The perineal operation is done in the following steps: (1) A curvilinear incision from one tuberosity of the ischium to the other, crossing the perineum about an inch in front of the anus and dividing the insertion of the sphincter ani into the tendinous centre of the perineum; (2) division of the anterior fibres of the levator ani and exposure of the rectum and prostate, and the separation of these till the base of the prostate and lower ends of the vesicles are reached; (3) division of one or both ejaculatory ducts at the base of the prostate by a transverse cut, seizure of the vesicle and its forcible extraction.

The steps of the sacral operation, using the Rydygier incision, are these: (1) The Rydygier incision, namely, beginning just behind the anus the oblique limb is carried up and slightly outward to the level of the junction of the fourth and fifth sacral vertebræ, dividing the tissues attached to the side of the coccyx and last piece of the sacrum. The transverse limb crosses the lower end of the sacrum at the upper end of the oblique. A few strokes of the osteotome divide the sacrum and allow the triangular flap so formed to be turned down, exposing the rectum. The rectum is next displaced to the right and the prostate exposed and then working from below upward the base of the bladder with the attached vesicle and vas is easily brought into view, but at some depth. Moderate distention of the bladder brings the vesicle nearer to the surface and makes its removal a matter of no great difficulty. (2) Displacement of the rectum and exposure of the prostate and base of the bladder. (3) Isolation of either or both vasa and vesicles directly under the eye and their removal.

GONORRHEAL PROSTATITIS.[1]

BY JOHN BAPST BLAKE, M.D., BOSTON.

WE are to consider briefly in this paper inflammatory processes involving the prostate, which accompany, complicate, and are dependent upon a pre-existing or coexisting gonorrheal urethritis. Such processes may vary markedly in duration, intensity and extent.

In duration they may be either acute or chronic, and last from three days to three weeks, or from months to years. In extent they may be limited to prostatic follicles, may involve the entire organ, or may penetrate the capsule and extend to the surrounding tissues. In intensity they may be of any degree, from a simple congestion with vague symptoms to rigors, fever, prostration and perhaps death.

It is obvious, therefore, that the clinical picture of gonorrheal prostatitis may be a many-sided one, and it should not be forgotten that in all its aspects, particularly in symptomatology, treatment and prognosis, it is further modified by the fact that it rarely exists unaccompanied with other complications; a posterior urethritis always precedes it; in the acute cases cystitis in some degree almost invariably accompanies it, and in the chronic condition it is with equal frequency associated with vesiculitis.

Anatomy. — The prostate is a roughly pyramidal musculoglandular organ, directly continuous with the neck of the bladder, situated behind and slightly below the pubes, from which it is separated by the cellular tissue of the space of Retzius. Posteriorly, only a fold of rectovesical fascia intervenes between it and the rectum. It is enclosed in a thin but firm fibromuscular capsule. It is about $1\frac{1}{4}$ inches deep, $1\frac{1}{2}$ inches wide, and $\frac{3}{4}$ inch thick, and its apex touches the posterior layer of the triangular ligament. The ancient and time-honored simile likening its shape to a chestnut is a description which applies with considerable accuracy as well to the comparison as to the gland itself. The mass of the prostate lies behind the urethra, which in this position has an almost vertical direction. The prostate consists of two parallel lobes connected posteriorly by a bar or collar. Normally a distinct third lobe does not exist.

A section shows a series of more or less complicated lobules, or glands, opening by from fifteen to thirty-two ducts into the prostatic sinus of the urethra. Five-sixths of the organ is glandular substance. Muscular fibres surround each lobule, of which there are forty or fifty. Elastic fibres keep the mouths of the ducts closed. The connective tissue is amply sufficient to furnish the necessary support to the glandular structures. The muscular substance is arranged primarily to compress the prostate, not to act as a vesical sphincter.[2]

Frequency. — Accurate statistics of the frequency of gonorrheal prostatitis are not obtainable by the writer. Montagnon and Eraud, quoted by Finger, say that the prostate is affected in 70% of all posterior urethrites. It is difficult to perceive how a posterior urethritis of any severity can fail to be accompanied by some degree of prostatic congestion, and if so it is only a question of opinion as to the amount of congestion which merits classification as a separate entity. Statistics of frequency will therefore vary with the accuracy and thoroughness of the observer; with the habits, mode of life and general condition of the patient, and with the character of the treatment. If the prostate be examined by rectum as a routine measure in every case of posterior urethritis the 70% given above will certainly be found not excessive.

A well-defined prostatic abscess, however, as the result of gonorrhea, is not a common occurrence. The following figures are taken from the card catalogue of the Boston City Hospital for the years 1881 to 1896: Abscess of prostate, 11 cases; prostatitis, 37 cases; prostatic hypertrophy, 241 cases. Of the 11 cases of abscess at least 3 were not obviously of gonorrheal origin, and at least 5 of the cases of prostatitis were not distinctly associated with gonorrhea. On the other hand, these figures only denote those cases in which the prostatic element dominated the situation, and do not include those in which it only complicated a more severe condition. They are, therefore, only relative, but emphasize the infrequency of the condition.

Etiology. — Within the past eight years the etiology of most of the complications of gonorrhea has been scientifically established. Among the latest contributions are those of Young, of Johns Hopkins, who has shown that the gonococcus may be the sole cause of acute and chronic cystitis, double pyonephrosis and general peritonitis. I have been unable to find in print the results of similar work upon the prostate.

Infection of the prostate may come by direct extension from the urethra, by the blood or urine (tubercle,

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

[2] Walker: Johns Hopkins Hospital Bulletin, vol. xi, p. 242.

typhoid) or by continuity of tissue. In gonorrhea it always comes from the urethra and from a pre-existing posterior urethritis. It is evident, therefore, that it may be due either to the gonococcus alone, or to a mixed infection, since we know that many cases of gonorrhea become a mixed infection early in their history. It is to be hoped that the investigations which have explained etiology and pathology of other gonorrheal complications will soon be duplicated in those involving the prostate.

Clinically, a posterior urethritis always precedes a prostatitis, even though the latter be due to manipulations with unclean instruments. Anything which irritates or tends to increase the congestion accompanying a posterior urethritis may act as an exciting cause of a prostatitis. Among many agents may be mentioned alcohol, coitus, prolonged sexual excitement, exposure to cold, forcible and injudicious injections, horseback riding, bicycling, and such violent exercise as running, jumping, etc. The jolting coincident to a railroad journey may be a determining factor.

Prostatitis usually appears at the end of the second or during the third week of urethritis, though it may, of course, come later. It may be worth while to repeat that it may be either acute or chronic, and that the acute cases may be of the type of simple congestion; of inflammation limited to the follicles and perifollicular tissues; of a process involving both follicles and parenchyma and progressing to pus formation of greater or less degree, and, finally, of a process involving almost the entire gland and extending to the periprostatic tissues. The chronic type is almost always follicular, though occasionally it is characterized by one or more small abscesses which develop without most of the typical symptoms. The duration of the acute congestive and follicular types is from three days to three weeks, parenchymatous and purulent from one to three months, and the chronic for months or years.

Congestion. — The beginning of congestive prostatitis may be suspected when the symptoms of an existing posterior gonorrhea increase, and pain and a feeling of soreness and weight deep in the perineum became especially prominent. If under these conditions rectal examination shows a prostate tender or hot or both, further data for the establishment of a diagnosis are not need. An increase in size may or may not be present, and even the increase in pain may be comparatively slight. The urethral discharge will probably be diminished. Under these conditions the patient should be put immediately to bed, bowels moved with salines, the diet made still more bland and hot rectal injections of moderate size given and retained. A hot-water bag may be placed against the perineum. Opium with or without belladonna may be given in suppositories, if the pain increases; and ol. santali will moderate the accompanying cystitis. European writers recommend highly Finger's hollow bulbous rectal tube, through which flows a continuous stream of cold water. It is introduced into the rectum and rests against the rectum.

The symptomatology of prostatic congestion is essentially an exaggeration of posterior urethritis, and its treatment is therefore an extension and elaboration of that of the latter.

Follicular. — In the follicular type the deep perineal distress and pain increase, and may radiate and shoot into the rectum or groin, or be referred to the end of the penis. Micturition is still more affected and tenesmus develops; frequently a drop of blood appears at the meatus, the result of the spasmodic action of the bladder sphincter at the end of the expulsive effort. The prostate is usually increased in size, and often one or more particularly tender spots denote the position of the inflamed follicles. The urethral discharge is usually diminished.

Parenchymatous. — With the involvement of the parenchyma, the increase in size becomes still more marked. The prostate, exquisitely sensitive, projects far into the rectum, causing a continuous, painful and, of course, ineffective desire to stool. Difficulty of micturition increases even to complete retention, and spasm of both urethral and rectal sphincters is almost constant. The general condition of the patient is seriously affected.

Abscess. — The formation of an abscess is almost always accompanied by rigors with marked exacerbations and sharp remissions of temperature, and a sensation of throbbing in the perineum, together with all the symptoms which accompany deep-seated suppuration. Fluctuation can often be discovered by rectal examination. Extreme prostration, suspicions of attendants and physicians, rejection of treatment, and delirium are not unusual. The prostatic abscess may point and break in almost any direction, the most frequent localities being the urethra, the rectum and the perineum in the order named. Occasionally the rupture is in two of these places simultaneously. Segond's classical collection of 102 cases showed rupture into urethra in 64, rectum in 43, perineum in 15, ischiorectal fossa in 8, and also in the groin, the prevesical space, the peritoneal cavity, the abdominal wall and the pelvic foramina. In the City Hospital cases above quoted 4 burst into the urethra and 2 into the rectum. As a rule the cavity granulates and fills rapidly and no further trouble results, but a urinary fistula may remain. This happened in 10% of Segond's group. The abscess cavity may be still further infected from the urethra or rectum with fatal results.

The mortality in prostatitis may be due to a variety of causes. Post [3] mentions 3 cases. One died in three weeks from the beginning of the gonorrhea and one week after the first symptoms of abscess, with fever and delirium. A second died in two months from pyemia and metastatic abscesses in lungs, liver and other organs; and a third from prostatic abscess with double pyelonephritis.

The mortality is variously estimated from 3% by White to 30% by Segond. Apparently different types of cases had been examined.

Retention is present in a large majority of cases; it may be relieved by repeated catheterization; by inserting a small catheter and leaving it in place, or by aspirating over the pubes. Unless we desire to utilize the catheter to facilitate discharge of the abscess through the urethra — as frequently occurs and as is sometimes recommended — aspiration is the method of choice. The surgical treatment is to afford drainage for the pus. If the abscess points into the rectum, after stretching the sphincter and cleansing the lower bowel, the fluctuating point may be incised with a bistoury, or punctured with a trocar, preferably the former. It is questionable whether any advantage is to be obtained by introducing gauze into the incision.

[3] Boston Medical and Surgical Journal, 1887, vol. cxvi, p. 417.

If the diagnosis is established before the abscess points into the rectum or perforates into the urethra, it should be opened through a median or crescentic incision in the perineum; this may involve a deep and rather difficult dissection and a wound not easy to drain effectively. High temperature and chills should cease as soon as thorough drainage is established, and retention is immediately relieved.

Periprostatitis.—Purulent periprostatitis differs only in extent from prostatic abscess. Symptomatology and treatment are practically the same. (It may be regarded as a later stage of parenchymatous inflammation.)

Prognosis. — In congestive and follicular prostatitis the prognosis is good. In purulent parenchymatous and periprostatitis it is guarded and dependent upon the possibility of effective drainage and on the patient's general condition.

Chronic prostatitis may result from a pre-existing acute condition, or may, and usually does, develop from a chronic posterior urethritis. It is usually follicular. Occasionally a chronic parenchymatous condition is found, with the development of numerous miliary abscesses. The symptoms are largely those of chronic posterior urethritis, with the addition of perineal tenderness, and an accompaniment of neurasthenia. The follicular type is characterized by the presence at the meatus of a thick, glairy mucus, which appears after stool or during sexual excitement, the so-called prostatorrhea. These chronic processes are almost invariably associated with vesiculitis and their duration is indefinite. The treatment is that of chronic posterior gonorrhea and of sexual neurasthenia — cold baths, general tonics, healthful habits, and locally, cold sounds, deep injections of nitrate of silver and, in the absence of acute symptoms, massage of the prostate.

GONORRHEAL CONJUNCTIVITIS.[1]

BY CHARLES H. WILLIAMS, M.D., BOSTON.

DR. BRADFORD has asked me to add a few words to the discussion of this subject, in regard to the gonorrheal inflammations of the eyes. It has been estimated that from one-third to one-half of the existing cases of blindness have been caused by gonorrheal inflammations of the eyes, generally as a result of infection of the cornea, and the ulceration and sloughing which often destroy more or less of the cornea. The disease generally occurs in infants, from one to five days after birth, or in young adults, and in almost all cases is caused by carrying to the surface of the conjunctiva some of the diplococci of Neisser (gonococci) either at the time of birth or in the subsequent washing of the infant's eyes, or by dirty fingers, towels, etc., in adult life. Other pyogenic organisms may give rise to a purulent conjunctivitis similar to the true gonorrheal form, so that it is not possible in any given case to say that the trouble must be due to gonorrheal infection without making a bacteriological examination, although in most cases it would be true.

In ophthalmia neonatorum the disease begins with a slight redness of the lids and a watery discharge from the eyes, the swelling of the lids rapidly increases, the discharge becomes streaked with mucus and is soon quite purulent and abundant. Swelling of the lids may be so extreme as to prevent their being opened for proper cleansing or examination except by use of a lid elevator, and the pressure of the lids on the cornea may become so great as to require a canthotomy. The inflammation of the conjunctiva will in time disappear without any serious results to vision, but the principal attention must be constantly directed to the condition of the cornea, to prevent, if possible, the infection of its tissue with the purulent matter.

For this purpose the first and most important treatment is the careful removal of the purulent discharge. This should be done every fifteen minutes or half hour, if necessary, night and day for the few days the disease is at its height, and at longer intervals as the discharge decreases. It is necessary to remove this discharge as thoroughly as possible, taking care that no damage is done to the protecting epithelium of the cornea. It does not make much difference what liquid is used for irrigating the conjunctival sac provided it is not irritating; my own preference is for a warm saturated solution of boric acid, used in quantities of half a pint to a pint at a time, by means of a small fountain syringe and a tube provided with a glass nozzle, with its end drawn out to a tube not over one-eighth inch in diameter, the end being carefully rounded in the flame. This should be cautiously inserted between the eyelids with the end carefully turned away from the cornea toward the upper part of the conjunctival sac, and moved across the lid so that the discharge may be removed from the whole of the conjunctival sac by the warm stream of irrigating fluid. Various forms of hollow lid elevators have been devised in which the fluid enters the shaft of the elevator and is discharged through a series of fine openings at its edge, which rests in the upper part of the sac, but in using any form of irrigating instrument great care must be taken not to injure the cornea.

The eyes of the nurse should be protected from any chance of infection by the spattering of a drop of the discharge into her eyes, and for this purpose a mica shield reaching well up on the forehead and extending to the temples can be used; protectors of this kind are used in sleighing to shield the eyes from the bits of flying ice and snow, and answer the purpose very well.

In the early stages of the disease, both in infants and adults, applications of cold may be made by means of cloths cooled on ice and laid over the eye, with frequent changes as the cloths get warm; but the cold applications should not be continued if any corneal complications arise. Nitrate of silver solutions should not be used in the early stages, but in the later stages of the disease, after the intense swelling of the eyelids has begun to subside and the discharge is more purulent, a 2% solution may be applied to the conjunctival surface and then neutralized with a salt solution, with good results, but nothing should take the place of the constant cleansing away of the discharge by gentle means as often as is necessary. Solutions of protargol, from 20% to 40%, applied to the everted lids in the later stages of the disease will in many cases work well, but it seems to be a less reliable remedy than the nitrate of silver. The edges of the eyelids and the surrounding skin should be protected with vaseline.

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

In patients who are in poor physical condition the application of heat will often prove better than cold; this can be done by hot cloths of several thicknesses which have been ironed with a hot flat-iron and applied to the eye as soon as they can be borne, or an electrically heated pad, in which the temperature can be well regulated, can be used. The patient should be kept in bed, the bowels well open, and if necessary tonics should be added to a liberal diet.

The danger of corneal complications is greater in adults, especially when they are in poor condition, than in infants, and in some severe cases it may be necessary to do a canthotomy or even to divide the upper eyelid vertically in order to relieve the pressure on the cornea and ensure its proper cleansing and treatment; after the inflammation has subsided the edges of the cut can be freshened and the lid united by fine sutures without any marked disfigurement. If the cornea becomes hazy and a small ulcer forms, continue the irrigation, use 1% atropine three times a day, and hot applications rather than cold. In some cases of marginal ulceration solutions of eserine, one-half grain to the ounce, may be used every four hours, but it must be used with care, and when the ulceration is central atropine will probably work better. With infants, especially in large lying-in hospitals, the number of cases of ophthalmia neonatorum has been much reduced by the prophylactic treatment proposed by Credé; he advised putting two drops of a 2% solution of nitrate of silver into the conjunctival sac immediately after birth, the lids having been first carefully wiped dry with a clean cloth, and care being taken not to get any of the water in which the child is washed into the eyes. In all cases in which there is any suspicion of gonorrheal trouble this method should be followed, also in large lying-in hospitals, but in ordinary cases of private practice it is usually not necessary.

When first seen, especially in adults, if the disease has only affected one eye, the other eye should be at once protected by covering it with a small pad of absorbent cotton over which gauze is placed, cut so that it reaches above the eyebrow and below the eye; this gauze should be fastened to the skin by repeated applications of collodion, special care being taken to make a tight joint at the bridge of the nose, over which some discharge is very likely to find its way. The gauze should be covered with collodion over its whole surface, and if necessary a piece of mica can be inserted in a window cut in the centre of the dressing, as recommended by Dr. Knapp, the cotton pad being omitted; the sound eye can thus be better watched and the patient can look about him.

The patient and all his attendants should be warned of the very infectious character of the discharge, and the necessity of burning all dressings that have been brought in contact with any of the discharge from the diseased eye.

WHEN IS A GONORRHEA CURED?[1]

BY PAUL THORNDIKE, M.D., BOSTON.

WHEN is a gonorrhea cured or ended? No one knows, and yet upon the answer to this question many social and moral problems of the greatest importance depend. We must admit at the beginning that the question cannot be answered. We do not and can never know when a man whose urethra has become infected with a gonorrheal inflammation ceases to be a dangerous person to those with whom he may have sexual relations. We believe we know that many such men do recover, as proven by subsequent experience. Many of them certainly do recover, so far as our present means of ascertaining that fact goes; they do marry and have healthy wives and children. Many others who believe they are well certainly do infect their wives.

Noeggerath, in 1872, in a paper which excited comment throughout the whole medical world stated that men infected with gonorrhea never recovered, and that 90% of these men, when they married, infected their wives. A few years later he formulated his conclusions somewhat as follows: "(1) That gonorrhea in the male, as well as in the female, persists for life in certain sections of the organs of generation, notwithstanding its apparent cure in a great many instances; (2) that there is a form of gonorrhea, which may be called *latent* gonorrhea, in the male as well as in the female; (3) that latent gonorrhea, in the male as well as in the female, may infect a healthy person either with acute gonorrhea or gleet; (4) latent gonorrhea in the female, either the consequence of an acute gonorrheal invasion or not, if it pass from the latent into the apparent condition, manifests itself as acute, chronic, recurrent perimetritis or ovaritis, or as catarrh of certain sections of the genital organs; (5) latent gonorrhea, on becoming apparent in the male, does so by attack of gleet or epididymitis; (6) above 90% of sterile women are married to husbands who have suffered from gonorrhea, either previous to or during married life."

These statements were made as the result of the author's clinical experience, and were made at a time when the gonococcus was still unknown. The discovery of the gonococcus does not seem to have markedly changed the force of these conclusions and when we remember that even in the anterior urethra remnants of the disease (possibly capable of reactivity) may exist and defy our most careful efforts to discover them; when we remember that it has been pretty definitely proved that in the greater number (probably over 90%) of all cases of acute gonorrhea the deep urethra is invaded; when we realize that the seminal vesicle is undoubtedly involved many times for every once that such involvement is discovered; when we think that a gonorrheal pyelitis may occur and continue to exist indefinitely with no knowledge to that effect on the part of its possessor; when we realize that all we can do to combat such a disease is to reach and treat such portions of it as we may with the means at present at our command, and to leave nature to handle the rest of it (no small part in many instances), we cannot be surprised at the character and scope of Noeggerath's statements. Nor can we disprove them except by offering in contravention to some of them, clinical observations and experiences of a character similar to his own. I take it, however, that it was not intended by the gentlemen who arranged this series of papers on gonorrhea, that this one should try to deal in detail with these various statements, nor is it necessary for the purposes of this paper to do so. It makes little difference just how far we, as individuals, are able to acquiesce in these statements

[1] Read before the Boston Society for Medical Improvement, December 31, 1900.

concerning gonorrhea. The medical world is united in realizing that gonorrhea is not the simple disease it was once considered, but is one which often spreads to places where its local treatment is impossible; which very often becomes chronic and sometimes defeats the efforts of the most expert for its eradication; which in very many instances retains its contagious capabilities long after its very existence is supposedly ended.

What can we, as physicians, do about such a state of affairs? We can do two things: (1) We can use every effort to prevent the exposure of innocent women to this infection, and (2) we can teach the rest of the world, both medical and non-medical, the necessity for being similarly careful. Most men have probably had a gonorrhea at some time in their lives. Whether or no we believe that none of these men have ever been cured, we certainly cannot forbid them all to marry; but we can subject all those who come within our reach to the most rigid examination, and then tell them either that we can find no trace of the disease and so believe them safe to marry, or that we have found traces of disease which it is absolutely necessary shall be treated and if possible cured. Most such cases depend upon a definite cause, which can be found and generally eradicated.

In brief, all acute cases should be freed from all traces of discharge, both that visible at the meatus and that showing as shreds in the urine, and should remain so free for a period of months, during which time the patient has lived his usual life, eating, drinking and exercising as he will. In the chronic cases, the *cause* of the discharge, whether it be a stricture already formed, granulating patches, areas untreated and uncured in the posterior urethra, involvement of the seminal vesicles, or any one or more of the many possible causes, must be sought for by one competent to so search, and when found must be treated and cured. This can generally be done, but often takes a number of months for its accomplishment. Having been so accomplished, the patient must pass through a period of probation similar to the one mentioned above. There remain a few cases where the most rigid examination of the whole urethra, prostate and seminal vesicles fails to reveal any lesion to account for the persistent drop or shred. In these cases it is my belief that efforts should be made to re-establish an acute inflammation by judicious local irritation with injections, and then a careful search for gonococci should be made in the discharge thus re-established. Should none be found after a number of examinations, the artificially produced inflammation is allowed to subside, which it should do in two to three days, and the remaining shred or drop be repeatedly and carefully examined for gonococci, preferably by another physician than yourself. If they are not found and the discharge is mucoid in character, the patient must probably be allowed to marry, but must still be told of the risk he runs. (Personally, I believe it to be a slight one.)

Of the various methods and instruments necessary for proper examination of these cases there is no time to speak. Nor is it expedient, for the work is work for the expert and not for the general practitioner. The writer's personal belief may be summarized something as follows:

(1) That the methods of examination at present at our command are fairly adequate to determine in any individual case whether there are still contagious possibilities in that case.

(2) That the methods of treatment at present at our command are fairly adequate for the treatment of those cases where remnants of disease are found.

(3) That all such remnants of disease should be treated whether they contain gonococci or no; and that they can be intelligently treated only after they are found and located.

(4) That there are a few cases where the remnant of discharge persists, but where no cause for its persistence can be found by the writer in spite of many most careful efforts. Some of these cases must probably be allowed to marry with traces of discharge still discoverable; but none such should marry until every possible effort has been made to demonstrate its non-contagious character and until the possibility of future trouble has been explained. It is the writer's custom to have more than one opinion in any case of this kind.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

(Continued from No. 5, p. 111.)

CHRONIC VILLOUS POLYARTHRITIS AND ARTHRITIS DEFORMANS.

The former is, according to Schüller,[22] a bacillus affection. Characteristic bacilli were found in 20 cases operated upon by him. The bacilli were found in the fringes and in the synovial tissues. These bacilli were cultivated and produced in guinea pigs a similar process. In arthritis deformans the affection does not attack the synovial membrane, but the cartilage covering the ends of the bone. The affection apparently is one of metabolism. At least no micro-organisms have been discovered. In the former affection Schüller uses guaiacol-iodoform glycerin injections, which are to be repeated. Operative method has the disadvantage that it requires for its completion a long continuous after treatment. In his later cases, thiocol was used instead of guaiacol. The injections are of no use in arthritis deformans. In the latter affection the writer endeavors to treat by giving a diet which is poor in lime, in opposition to what other writers have used. A little milk is given, and under this treatment an increase in the elimination of lime in the urine is observed.

CHRONIC RHEUMATISM AND ARTHRITIS DEFORMANS.

Müller[23] insists on the necessity of a careful diagnosis in these cases. Chronic rheumatism belongs more properly in its treatment to the department of internal medicine. Arthritis deformans needs to be treated by surgical means and gymnastics.

Clement Lucas[24] has collected 20 cases of joint disease in infants, apparently gonorrheal consecutive to gonorrheal ophthalmia. In most of the cases the ophthalmia dated from birth and infection in parturition. The arthritis appears usually in the second or third week. All joints may be affected, most often

[22] Berlin. klin. Woch., 1900, Nos. 5-7.
[23] Zeit. f. orth. Chir., Bd. viii, H. 1.
[24] Transactions of Medico-Chirurgical Society of London, 1899, lxxxii, p. 137.

several at a time, most frequently the knee and the wrist. Duration seems to depend largely on the treatment and cure of the ophthalmia. Usually the arthritis lasts four or five weeks. In 2 cases there was suppuration necessitating operation.

CONGENITAL DISLOCATION OF THE KNEE.

Drehmann claims that this affection, although not rare, has been less written about than congenital dislocation of the hip. The prognosis of treatment if the cases are taken early is much more favorable than in congenital dislocation of the hip, and consists of early forcible reduction of the deformity. The obstacle to reduction is the shortening of the quadriceps; this can be either divided or stretched. The limb should be put up in a plaster-of-Paris bandage in a corrected position.

TRANSPLANTATION OF THE TENDONS.

Lange,[25] in the place of tendon transplantation, that is, the sewing of the tendon of a strong muscle to a paralyzed tendon, substitutes what he calls periosteal transplantation. He considers that the advantage of this is that instead of inserting a strong muscle into a weak tendon, he can insert strong muscles into the desired point of bone, making an attachment where he wishes. He thinks that in this way it may be possible to lay aside apparatus in 80% or 90% of the cases of this deformity. He presents a case of paralytic varus where the tibialis anticus was split and one part stitched to the outer part of the tarsus with excellent result, also a second similar case. In 2 earlier cases the biceps and semitendinosus tendon were transplanted into a quadriceps tendon, without results, owing to the feeble condition of the quadriceps. He, therefore, in 3 later cases connected the tendon of the biceps and the tendinosus with the periosteum of the tibia, making a connection between the tendon of the semitendinosus and of the biceps and the periosteum by strong silk thread, which passed subcutaneously between the patella and the skin to the tibia, and was sewed to the tuberosity of the tibia. The result is reported to have been excellent.

Popper [26] reports successful results of arthrodesis of the knee and the astralagotibial articulation. The patient before the operation was only able to walk on all fours. The operation has also been done successfully in paralytic valgus, and also in the wrist in the case of a paralyzed hand.

PERIOSTEAL TRANSPLANTATION, ARTHRODESIS IN INFANTILE PARALYSIS.

Hoffa [27] recommends arthrodesis, and has practised it in a case where both knees and the astralagotibial articulation were operated on and obliterated. The boy had previously been able to walk only on all fours. The operation has also been performed with success in paralytic deformity of the wrist.

TORTICOLLIS.

Pfeiffer, in a monograph (Berlin, 1900) on the treatment of torticollis, reports 25 operated upon and 13 treated by massage. The birth of these children was in 18 in pelvic presentation; 6 were artificial; 1 foot presentation; 11 the head position, besides 3 cases of turning and 4 cases aided with forceps. The writer is of the conclusion that torticollis from intrauterine position is not common, if it has ever been accurately observed. The most common cause is the tearing of the sternocleidomastoid muscle which takes place in pelvic presentation. The right is the most common side. The most important moment for the injury to the muscles is the turning of the head, the muscular contraction in early attempts at breathing. A hematoma following an injury, and an interstitial fibrous myositis, will call forth a contraction of the muscle. If an improvement is to be seen in the sternocleidomastoid energetic massage will be sufficient, but if induration is obstinate, excision of the callus is desirable. If the muscle is degenerated, open incision is preferable to myotomy. An apparatus correcting position is desirable for awhile.

OPERATIVE TREATMENT OF SPASTIC TORTICOLLIS.

Kalmus [28] describes the result in 95 cases, treated by operation, upon which 118 operations were performed. In 11, the stretching of the spinal accessory nerve was undertaken, 3 were cured. With a section of the accessory nerve, 23 were cured, 20 showed improvement, 4 were but slightly helped, and 1 died of erysipelas. In 15 cases after the resection of the accessory, further operative interference was undertaken: in 13, resection of the cervical nerves followed, in 2 resection of the sternocleidomastoid with a destruction of the accessory. Of those cases on which the cervical nerve was divided, 10 were healed and 3 were benefited. In the same way in those on whom, after the destruction of the accessory, a resection of the sternocleidomastoid followed, cure resulted. Two resections of the cervical nerves without the resection of the accessory resulted 1 cured and 1 improved. In 15 cases the cervical nerves were affected, and 11 of these were healed.

A comparison of this method, that is, the combination of muscle division and resection of the cervical nerve with a previous resection of the accessory, gave better results than in Kocher's procedure, by muscle resection, but the writer thinks that further investigation is necessary. Internal treatment is without benefit. Electricity and massage combined with orthopedic treatment is sometimes successful.

(To be continued.)

[25] Münch. med. Woch., 1900, No. 15.
[26] Wien. klin. Rund., 1900, No. 20.
[27] Loc. cit.
[28] Beitr. zur klin. Chir., 1900, Bd. xxvi, S. 189.

Recent Literature.

Description of the Human Spines Showing Numerical Variation in the Warren Museum of the Harvard Medical School.[1] By THOMAS DWIGHT, M.D., LL.D., Parkman Professor of Anatomy in the Harvard Medical School. Published by the Society. 1901.

In a monograph of 75 quarto pages Professor Dwight describes a collection of 45 anomalous human spines which he has been several years in bringing together. Some of the specimens are unique, others are extremely rare. All are ligamentous preparations, which precludes the possibility of error in the number of vertebræ in reassembling the spines. The an-

[1] Memoirs of the Boston Society of Natural History, vol. v, No. 7.

nounced purpose of the paper is "to discuss what these spines teach concerning the significance of numerical variation of the vertebræ" and "to make the collection available to others."

Assuming that Rosenberg's theory of the forward migration of the ilium in ontogenetic development is true, Dr. Dwight seeks to discover if it explains satisfactorily numerical variation in the number of presacral vertebræ. He concludes that the "intercalation theory" or "the better one of an error of segmentation" does not exclude Rosenberg's. As irregularities occur in so many combinations in the several parts of the spine it is difficult to fix upon a starting point. Rosenberg and most biologists would compare the twentieth vertebræ of one spine with the twentieth of all others, but Dr. Dwight believes that if it can be shown that a certain vertebra has a distinct teleological value it is to be taken as a starting point. He therefore adopts Welcker's idea of a *vertebra fulcralis*. This is the one that has most to do with supporting the ilium, normally the twenty-fifth. Sometimes it is difficult to decide which is the *fulcralis*, but where everything is variable we cannot "exact absolute stability from the *fulcralis*."

If we regard the spine above the pelvis as an apparatus that develops as a whole for the performance of several functions, we can understand why a tendency exists for parts in the same relative position with reference to the *vertebra fulcralis* to develop in the same way. It is unlikely that there is a precise number of human vertebræ. Variations increase downward until in the region below the vertebræ supporting the ilium the number becomes very unstable. Dr. Dwight finds in this investigation further proof in support of his well-known belief that many of the morphological variations are to be accounted for on the ground of fortuitous variation about a mean rather than as oscillations between reversion and progression.

The collection is classified in five groups: (1) Normal number of presacrals, but with irregularities at the junction of the thorax and neck or at the junction of thorax and loins; (2) twenty-sixth is the *fulcralis*, but the twenty-fifth is not quite separated from it; (3) more than twenty-four presacrals; (4) imperfectly developed presacrals; (5) less than normal number of presacrals.

Among the remarkable specimens are two spines with two additional presacrals with the last one sacralized on one side; a case of fusion of axis and third; a spine with fused atlas and axis, suppressed cervical, an additional lumbar, and sacralized on one side; a spine with anterior arch of atlas wanting, cervical rib on one side reaching sternum, suppression of thoracic vertebra; one in which there is a cervical rib to manubrium on one side, with the next rib ending in place of normal second, with no contact between the cartilages, suppression of a thoracic vertebra.

In conclusion Dr. Dwight states a number of deductions that seem justified and lays stress upon the action of "a vital principle" as a determining cause of the variations described; for example, "variations which separately seem either reversive or progressive generally lose that appearance when the whole spine is considered." "After the occurrence of the original error in development there is a tendency for the spine to assume as nearly as possible its normal disposition and proportions. This, as do also concomitant variations and indeed all development, implies a vital principle."

This paper considers a difficult subject, is based upon prolonged research, involves biologic principles of the first importance, presents new material and arrives at suggestive conclusions. It is illustrated with numerous drawings and is accompanied by a selected bibliography of 23 titles.

Experimental Research into the Surgery of the Respiratory System. An Essay awarded the Nicholas Senn Prize by the American Medical Association for 1898, by GEORGE W. CRILE, A.M., M.D., Ph.D., Professor of Clinical Surgery, Medical Department, Western Reserve University; Surgeon to St. Alexis Hospital; Associate Surgeon to Lakeside Hospital, Cleveland. Second edition. Philadelphia: J. B. Lippincott Co. 1900.

We did not have the pleasure of seeing the first edition of this essay, which, the author states, was undertaken in view of the fact "that there are a number of phenomena attending operations and injuries of the thorax and respiratory tract which are not sufficiently well understood for ready application in surgery." It is the result of research work extending over two years.

The writer has taken up the following different subjects in experimental work: "On the Cause of the Phenomena Attending the Inhalation of Hot Air and Flame," "On the Effect of Filling the Chest with Fluid," "On the Effect of Prolonged Manipulation of the Brachial Plexus and the Nerves Supplying Some of the Muscles of Respiration," "On the Cause of Collapse or Death from Blows on the Lower Chest or Epigastrium," "On the Mechanism of Drowning," "On the Cause of Certain Symptoms Observed on Entering an Atmosphere of Increased Barometric Pressure," "On Foreign Bodies in the Pharynx and Esophagus," "On Foreign Bodies in the Trachea and Larynx," "Laryngotomy," "Tracheotomy," "Intubation," "On the Cause of Certain Phenomena Attending Considerable Traction on the Tongue."

The author has brought to his work a knowledge of the technique of experimental physiology and has endeavored to explain some of the obscure phenomena that occur in surgery of the respiratory system. It is an essay which will repay careful study and is very suggestive as to lines of research work. We trust that Dr. Crile will continue his work, which is an investigation of surgical phenomena by methods of research work used in a physiological laboratory.

Tirard's Medical Treatment. A Textbook of Medical Treatment of Diseases and Symptoms for the Use of Students and Practitioners of Medicine. By NESTOR TIRARD, M.D., F.R.C.P., Professor of Principles and Practice of Medicine, King's College, London. Adapted to the U. S. Pharmacopeia by E. QUIN THORNTON, M.D., of Jefferson Medical College, Philadelphia. In one octavo volume of 624 pages. Philadelphia and New York: Lea Brothers & Co. 1900.

The author is professor of the principles and practice of medicine in King's College, London. This volume may be regarded as a supplement to the usual textbooks on medicine, in which the section

on treatment which follows those on history, symptomatology, diagnosis and prognosis is apt to be somewhat curtailed by the exigencies of a necessarily limited space. The sequence of the chapters rests on an anatomical and physiological basis. Where formulæ are given they have been adapted to the U. S. Pharmacopeia. The volume is an octavo of 630 pages and is divided into 25 chapters. The work of the author and the presentation by the publishers have been well done. The book will be found a useful one by advanced students and by thoughtful practitioners of medicine.

The Prevention of Valvular Disease of the Heart. A Proposal to Check Rheumatic Endocarditis in its Early Stage and Thus Prevent the Development of Permanent Organic Disease of the Valves. By RICHARD CATON, M.D., F.R.C.P., Hon. Physician Liverpool Royal Infirmary, Emeritus Professor of Physiology, University College, Liverpool. With 6 illustrations. London: C. J. Clay & Sons. 1900.

In this little book Mr. Caton supports the old dictum that the best treatment for acute rheumatism is six weeks in bed, at least in those cases in which the endocardium is attacked. He wisely pleads for prolonged rest, in cases where the valves are involved, as the most important element of success, to which a flannel suit, a light diet, small blisters applied to the upper part of the thoracic wall and the administration of sodium or potassium iodide are contributing factors. He reports 86 cases showing the success of this method of treatment. To some, however, the carping critic might urge that the murmur which developed was dynamic and not organic. The early chapters in the book are devoted to the frequency and gravity of valvular disease. A short chapter on pathology is contributed by Dr. Abram.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By PATRICK MANSON, C.M.G., M.D., LL.D., F.R.C.P. (Lond.). Revised and enlarged edition, with 114 illustrations and 2 colored plates. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

The first impression of the first edition of this book appeared in April, 1898, and was reprinted three times. The present is a revised and enlarged edition. During the two and a half years elapsing between the first and second editions much attention has been given to tropical diseases and some important changes have taken place in the views obtaining in regard to some of them. Dr. Patrick Manson is an eminent and experienced authority on tropical diseases.

While making no pretension to being more than an introduction to the department of medicine of which it treats, this handy little manual of 684 pages of reduced octavo size will be found most convenient and reliable either for the student, the physician's library or the traveller. The illustrations are good and well selected and the general make-up excellent.

The Prevention and Cure of Obesity. By ARTHUR B. CARTER. Boston: The Rockwell & Churchill Press. 1901.

This small book of 15 pages on a very knotty question does well to confine itself largely to the author's personal experience, "who reduced his weight forty pounds in nine months." As a record of a single case, the book is of value and interest.

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ANNUAL REPORT OF HARVARD COLLEGE, 1899–1900.

THE annual report of Harvard College, meaning thereby of Harvard University, a copy of which for the academic year from September, 1899, to September, 1900, lies before us, is never a dull and may generally be found to be a suggestive document. The present report is no exception to this rule, although the portions relating strictly to the Medical Department are perhaps less important than on some previous occasions.

The average age of the entering Freshmen in the Academic Department has diminished slightly of late years, chiefly because there has been a decrease in the number of abnormally old persons admitted. Three-eighths of the Freshmen admitted in 1900 were nineteen years of age or more. The president considers it desirable, and in this those interested in the graduate schools or departments as well as in the college must concur, that the proportion of persons entering between seventeen and nineteen should largely increase. In his opinion, there is no good reason why nine-tenths of all the boys who mean to go to Harvard College should not be fully prepared for admission at eighteen years of age.

The dean points out that it is too early as yet to determine whether the new method of admission to Harvard College is more difficult than the old, or less difficult. The fact seems to be that increase in some directions is counterbalanced by diminution in others.

The dean of Harvard College and the dean of the Lawrence Scientific School, writing without any comparison of views, both complain of the fact that students are inclined to neglect their duties because of small ailments, which in after life would never be allowed to interfere with their daily work. It is stated that this tendency should be resisted by all the administrative officers and by public opinion among teachers and students alike, for it is a bad preparation for the strenuous work of after life.

The dean furnishes tables relating to various points in the working of the elective system. These tables, it is thought, confirm the results of previous inquiries in several important respects: "Thus, they prove that

under a wide elective system there will be no extreme specialization, and there will be a fair amount of judicious choice of correlated subjects. The general conclusion is that a boy of eighteen who has had a good training up to that age will ordinarily use the elective system wisely, and that the boy who has had an imperfect or poor training up to eighteen years is more likely to accomplish something worth while under an elective system than under any other. The group system is the right one for professional schools in which the future career of every student is assumed to be determined. When a youth has made up his mind to be a minister, a lawyer, or a mechanical engineer, there are, of course, certain studies to which he should by preference devote himself. A student in arts and sciences, if he knows what his future profession is to be, may wisely choose his studies with reference to that profession; but to that end free election is what he needs and not inflexible groups. A prudent student in arts and sciences who does not know what his profession is to be will choose his studies from among those which give him pleasure and in which he has capacity to excel, because it should be somewhere in these fields that he should find his future calling. For such young persons Shakspere's advice is the wisest possible — 'No profit grows where is no pleasure ta'en: — in brief, Sir, study what you most affect.'"

The president informs us that: "Observers of the newcomers to the Scientific School who have compared them with the newcomers to the college have formed the opinion that the average physique of the young men who enter the Scientific School is superior to that of those who enter the college. This observation is borne out by the fact that the Scientific School contributes a larger proportion of men to the various athletic teams and crews than the college. The cause of the phenomenon is not easy to discern. A corroborative fact appears in the absence records of the two departments: the demands made by the Scientific School upon its students under the group system are more severe than the demands made by Harvard College on its students under the free elective system; but there is no more sickness, or tendency to break down, observable among the students of the school than among the students of the college."

The neglect of the subject of physics by students, both of the college and the graduate school, still continues, and is considered one of the most curious phenomena in the university of today. In this respect, there is a great contrast between the department of physics and the department of chemistry, the resort to the chemical courses being much larger. In fact the chemical laboratories are full to overflowing. "The advanced courses in physics require a good knowledge of mathematics and this requirement may restrict the numbers choosing them; but the elementary courses do not require any advanced mathematics. The applications of physics in modern industries are certainly as extensive as the applications of chemistry, and the subject is even more many sided than chemistry. There is, as has been several times pointed out in these reports, a strong demand for competent teachers of physics, as well as for engineers who have received thorough training in heat, light and electricity. This limited resort to the courses in physics is not at all peculiar to Harvard University; it seems to be a widespread phenomenon. There are some indications that the number of students attending these courses is gradually increasing, but that increase ought to be large and rapid."

It is interesting, on the other hand, to note that: "The psychological laboratory furnished the demonstrations given in Professor Münsterberg's elementary course in psychology, a course chosen by three hundred and forty-six students, and also the experiments in Dr. MacDougall's course in experimental psychology; but its chief work was, as usual, original research carried on by advanced students and the instructors. Some of the subjects of investigation were complicated color illusions, the difference between memory for words, for perceived objects and for activities, the relations between memory and attention, some subconscious motives of judgment, the relations of rhythm and rhyme, symmetry in artistic composition and the mutual interference of several coinciding volitional impulses. Some work was also done in animal psychology, a new department of the laboratory which was established in 1898–1899. Two of the subjects studied were the symptoms of memory in the newt and the training of the crayfish in new habits.

"The number of students prepared to do original work in investigation is increasing. As the psychological seminary is also increasing, the congestion in the laboratory becomes more and more troublesome. The department of philosophy needs very much a new building, with ample room for laboratories, seminaries and library, and as remote as possible from the noises of the city."

A considerable portion of the president's report is devoted to the expedition of the Cuban teachers to Cambridge in the summer of 1900 and its results. The general conclusion is reached that the expedition fulfilled to a remarkable degree the enthusiastic expectation of good anticipated for it by its promoters. In regard to the physique of the visitors, it is stated as a conclusion from general observation and from measurements taken by Dr. Sargent, that the Cuban women compare more favorably with the American women than the Cuban men with the American men.

The system of medical visitation of students is reported as continuing to prove itself useful in a high degree. The short course of lectures given by the medical visitor at the opening of the current year on the physical evils to which the student may be exposed, and on the means of preventing injury to health by avoiding excess in eating, drinking, taking exercise, or working, or by eating or drinking too little, sleeping too little, and taking no exercise, was thronged.

The Medical School has a larger proportion of teachers to students than any other department of the university, if one excepts the Divinity School. This makes the instruction in the Medical School very costly, and the tendency of the new methods of instruction, introduced during the past year, will inevitably increase rather than diminish this cost. Our readers will remember that the chief characteristics of these new methods were a condensation of the basic subjects of the first two years — such as anatomy, physiology, chemistry, pathology — into half-year periods; the division of the classes into small sections, and the combination of practical with written examinations. It is certainly too early to definitely determine the results of this method. The dean of the Medical School reports that the results show the changes to be in the right direction. The sequence of studies is better than under the old method. The reports from most of the instructors are favorable. In clinical chemistry the system does not seem to have worked well. The department of anatomy is disposed to suspend judgment with regard to final conclusions. No practical readjustment of the studies of the third and fourth years has yet been accomplished; but the amount of sectional teaching is greatly increased, and practical examinations are combined with the written.

The accommodations of the present Medical School building are reported as totally inadequate to the demands of the lecturers and the regular teachers in the laboratories. The dean states that scientific investigations and research work by the teaching staff are almost at a standstill, all the available room being needed for the sole purpose of teaching students. More land has been secured, and the necessary buildings must and doubtless will be provided.

GONORRHEA FROM A MEDICO-LEGAL STANDPOINT.

THE series of articles on gonorrhea published in this week's JOURNAL, and previously read at a meeting of the Improvement Society, are well worthy of attention. They present the most advanced views on the subject in many of its relations. Perhaps they present as wide a study of the subject as could be presented in a single evening, but one of the most interesting points from which they may be regarded is the value of the portions of the subject which are left out. If we undertake to indicate some of the interesting omissions, it is not for the sake of undervaluing the papers, but for the sake of showing how wide a field for study still remains.

The gonococcus must some time be studied as to its relations outside of the human body. Has it a habitat in either the vegetable or the animal world, and is its distribution possible without direct human intervention? What is the clinical difference between the urethritis in which the gonococcus is found and in which it is absent? The recognition of the fact that a gonorrhea may reappear after very considerable time has done much to simplify some of the difficult questions as to its origin, but there are still many cases which we are unable to explain.

It has always been an interesting subject to study the eruption which is described by the French as an occasional accompaniment of gonorrhea. Such an eruption seems to be unknown in this country and no one has as yet tried to reconcile the difference in the observations there and here.

Cowper's glands are known as the seat of a series of abscesses resulting from gonorrhea, but they still present a subject for investigation. The recent observations of the pathologists in regard to the occasional pathological complications are of great interest, and might well have been discussed for the instruction of the Improvement Society. And, in the light of recent pathological studies, gonorrheal rheumatism is of even greater interest. In connection with rheumatism, rheumatoid iritis deserves mention, but perhaps the most serious interest is awakened in the consideration of the medico-legal relations of the gonococcus. On the statements made in these papers there can be no question that the search for the gonococcus as made by the ordinary practitioner can be of absolutely no value in a court of law. If there is any value in a medico-legal sense in the gonococcus it can come only from the testimony of an expert and must be put practically upon the same basis as the search for poisons. It is even a question whether the study of its entity is sufficiently far advanced to make the testimony of an expert fit for production in court. This coccus was first known by its morphology, then by the fact that it was contained within the pus cells, then by its behavior under methods of staining, and now we are told that it can be fully recognized only by its method of growth in certain selected culture media, and that it will not grow on ordinary culture media.

No germ yet studied holds quite the same relations to the human race as the gonococcus. Its recognition is not of so great value to the patient in regard to treatment as in regard to the etiology of the disease. The reputation of individuals and the future happiness of families depend upon our knowledge of that organism. To such questions as arise in connection with it, no reckless, uncertain or doubtful answer can be admitted.

It seems fairly well established that the gonococcus is the active agent in the existence of gonorrhea. One cannot then be sure of a contagious gonorrhea unless the gonococcus is identified. No one but an expert in bacteriology can be sure of the gonococcus. Even the expert in bacteriology cannot be sure of the identity of the gonococcus except from its growth on certain media. Surely these cultural peculiarities on artificial media are not alone sufficient to justify the expert in swearing away a reputation. The absolute value of these cultures needs to be tested by their action upon the human urethra under circum-

stances which render any infection of that urethra, either in the past or during the time necessary for observation impossible, before the opinion of the expert can be unreservedly accepted. One cannot be sure that such experimentally infected urethræ can ever be cured, so that the opportunities for such crucial tests must be very few. One cannot then be surprised to find such statements as that in J. Dixon Mann's volume, on "Forensic Medicine and Toxicology," published in 1893: "Vibert and Bordas believe that the distinction between gonorrhea and leucorrhea cannot be determined with absolute certainty by bacteriological examinations even of the most complete kind, and, therefore, that an expert is not justified in affirming the nature of a discharge on this ground. These views were accepted by the *Société de Médecine Légale de France*, before which body the statements were made. In the present state of bacteriology we are not in a position to say that the presence or absence of gonococci would justify a statement on oath either for or against specific infection."

A statement made some years ago in one of our courts must hold good today. The gonococcus is highly interesting and of the greatest importance from a scientific point of view, but its position is not so firmly established as to make it a proper subject for medico-legal consideration.

MEDICAL NOTES.

A Physician Fined for Being Late at Court. — A physician has recently been fined in Philadelphia for not appearing promptly at court in answer to a subpena. The reason for the delinquency was the serious illness of a patient, to whom the physician thought his first attention should be given. The judge is reported to have said that his first duty was to the court and that although the case was so serious, it was, nevertheless, better that a patient should die than that the Commonwealth should be treated with contempt. The fine was finally remitted.

Bubonic Plague in Wales. — It is officially reported that a mill worker at Cardiff is suffering with bubonic plague. Another mill hand is suspected of having the disease.

A Bold but not a Bad Step. — The *Lancet* has at length taken heart of grace to burst the cerements of long habit and conservatism, and having waited until the beginning of the new century, has finally with great boldness ventured to put titles at the head of its editorials.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, February 6, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 70, scarlatina 28, measles 38, typhoid fever 7.

Statistics from the Annual Report of the Cambridge, Mass., Board of Health. — The reported cases of diphtheria for the year 1900 show an increase of 423 over those recorded in 1899, or almost 50 per cent. The greatest increase was in Ward 2, where 215 more cases developed last year than during the year before. A noteworthy section of the report is that which says that there was a decrease of 61 cases in East Cambridge, which has always been regarded as the part of the city in which the spread of contagious disease is most likely to occur. The case death rate percentage was 7.78. This is regarded as a low fatality record considering the total number of cases. Eleven more cases of typhoid fever were reported in 1900 than in the year previous. The reported cases of measles show a decrease of 335 from those of 1899. The decrease was evident in every ward in the city. Eighteen more cases of scarlet fever were reported in 1900 than in the preceding year. The total number of deaths recorded was 1,547.

Physicians' Automobiles on Park Roads. — Chairman Stratton of the Boston Park Commission has sent the following note to certain physicians, who have petitioned that they might be allowed the privilege of using their automobiles at all hours on the park roads, when upon professional business: "After careful consideration the board has voted that it cannot grant the petition of yourself and other physicians to use automobiles in all park roads at any and all hours when upon professional business. We feel that it would not be in the public interest to suspend the rules for a particular class, even one so deserving of consideration as your profession. In the extremely rare cases where it would be a matter of life or death, and two or three minutes are of vital importance, I do not suppose that you would hesitate to infringe a park rule or that any one would call you to account for so doing."

The Care of Cases of Delirium Tremens and Suspected Insanity. — The question of the proper place to care for places of delirium tremens and suspected insanity is again under discussion. At a recent meeting of the Public Institutions Conference Dr. H. C. Baldwin, chairman of the Board of Trustees of the Insane Institutions Department, brought out the objections to the present plan of sending such cases to Deer Island. It was suggested that the City Hospital was the proper place for them. The trustees of the City Hospital are said to be opposed to the plan.

Inspection of Tenement Houses. — The Boston Board of Health has begun an inspection of the tenement houses, relative to overcrowding. The inspectors have received instructions to make an examination of all dwelling houses occupied by more than three families, and where they discover defective sanitary arrangements, to take such action as is necessary to make the rooms and surroundings clean and healthy. In order to prevent unsanitary overcrowding the board

has decided to enforce more strictly the law which demands at least 300 cubic feet of air for each individual.

BOSTON HEALTH STATISTICS. — The number of deaths reported to the Board of Health for the week ending February 2d was 243, as against 223 the corresponding week last year, showing an increase of 20 deaths, and making the death rate for the week 22.6. The deaths from consumption were 28, pneumonia 37, whooping cough none, heart disease 26, bronchitis 11, marasmus 1. There were 2 deaths from violent causes. The number of children who died under one year was 28, under five years 58, persons more than sixty years 63, deaths in public institutions 63.

QUARANTINE AT CHARLESTOWN NAVY YARD. — Owing to the prevalence of diphtheria in and about the Charlestown Navy Yard, the training ship *Wabash*, the Marine Barracks and the Naval Prison at the Navy Yard have been placed under quarantine, as a precautionary measure.

BURIALS WITHOUT COFFINS. — It is alleged that an old Jewish burial custom of burying bodies without coffins has been revived in Boston. The Board of Health has investigated the matter and has ruled that the practice be discontinued.

DIPHTHERIA AT THE NAVAL HOSPITAL, CHELSEA. — About 30 cases of mild diphtheria have developed at the Marine Hospital in Chelsea. There is no apprehension regarding an extended spread of the disease.

NEW YORK.

THE BELL ANTI-CHRISTIAN SCIENCE BILL. — On January 30th a hearing was given at Albany, by the Assembly Committee on Public Health, on the bill prepared under the auspices of the Medical Society of the County of New York and of the State Medical Society, and popularly known as the "Bell Anti-Christian Science Bill," which, in the form of an amendment to the Public Health Law of 1893, makes the following definition of the practice of medicine: "Any person shall be regarded as practising medicine, within the meaning of this act, who shall prescribe, direct, recommend, or advise, for the use of any other person, any remedy or agent whatsoever, whether with or without the use of any medicine, drug, instrument, or other appliance, for the treatment, relief or cure of any wound, fracture, or bodily injury, infirmity, physical or mental, or other defect or disease." The hearing was attended by a large number of Christian Scientists, several of whom spoke against the bill, and by a considerable number of the medical profession. Among those who made arguments in favor of its passage were Dr. Elsner, now president of the State Medical Society, Dr. A. Jacobi, of New York, Drs. Clark and How, of Buffalo, and Mr. Andrews, counsel for the Medical Society of the County of New York.

FALSE ANSWER IN INSURANCE APPLICATION. — In a suit brought in the Supreme Court in Orange County, to recover the amount of a policy in the Northwestern Life Assurance Company, the defence interposed was that a false answer was made by the insured in his application for insurance. It was claimed that the answer, to the effect that former applications of the insured had not been rejected, was false. Proof was given at the trial that the answers in the application were in the handwriting of the company's agent; that the deceased made a full statement of his previous rejections to the agent; that he was not informed of the character of the answers inserted in the application, and that the application was not read to him when he signed it. The Appellate Division in Brooklyn affirmed judgment rendered in favor of the plaintiff, holding that the evidence was sufficient to sustain a recovery, and that the plaintiff was not required in such an action to secure a reply in order to entitle him to give testimony showing that the answers had been erroneously written by the company's agent.

DR. MARY WALKER ON BURIAL IN SKIRTS. — When Dr. Mary Walker, who is at present a resident of Albany, read an account of the funeral of Murray Hall, the woman who for so many years was regarded as a man, she is reported to have indignantly said: "I think it an outrage that they buried that poor woman in skirts. If anybody tries to put skirts on me after I'm dead I'll haunt them."

SMALLPOX. — During the past week a considerable number of cases of smallpox have been found in an upper East-Side district inhabited almost exclusively by Italians, and on the night of February 1st the officials of the Health Department made a systematic visitation of this "Little Italy," as the district is known, with the result of discovering 7 additional cases and the body of a child who had died from the disease during the day. Had it not been for the protection afforded by a force of 300 policemen, who formed a cordon around the district, they would undoubtedly have suffered violence at the hands of the excited residents. In one barricaded apartment 3 children, all suffering from smallpox, were discovered under a bed. Other cases were found hidden in closets and cupboards and in one or two instances fathers took their sick children in their arms and fled with them over roofs of houses.

MURRAY H. HALL WAS A "LADY." — One of the richest contributions made in recent years to "crowner's quest" lore is to be found in the verdict rendered last week by the jury in the case of the Hall woman, who passed in the community for so many years as a man. It was in the following remarkable language: "Murray H. Hall came to his death from natural causes. He was a lady."

ANNUAL REPORT OF STATE BOARD OF HEALTH. — The annual report of the State Board of Health shows that in 1900 the total deaths in the State numbered 128,468, an excess of 6,647 over the mortality of 1899, and of 8,000 over the average of the past

five years. The influenza epidemic of the year was unusually severe, lasting six months, and probably adding 11,500 to the number of deaths. There were 14 deaths from smallpox, 10 of which occurred in New York City.

Sing Sing Prison Buildings Condemned. — On January 30th, the State Board of Health passed a resolution declaring the buildings of Sing Sing Prison unfit to be occupied by human beings and recommending that immediate steps be taken to remedy the existing conditions.

President and Vice President of Medical Society of State of New York. — On January 31st, Dr. Henry N. Elsner, of Syracuse, was elected president, and Dr. Louis N. Lanehart, of Hempstead, vice president of the Medical Society of the State of New York.

A Centenarian. — Isaac Landy, a native of Kiev, Russia, died on January 28th, at the reputed age of one hundred and five. He did not come to this country until he was ninety-four years old, when his son, living in New York, sent for him.

Miscellany.

THE LAST ILLNESS OF THE QUEEN.

We are enabled to publish the following authoritative account of the last illness of Queen Victoria:

The Queen's health for the past twelve months had been failing, with symptoms mainly of a dyspeptic kind, accompanied by impaired general nutrition, periods of insomnia, and later by occasional slight and transitory attacks of aphasia, the latter suggesting that the cerebral vessels had become damaged, although Her Majesty's general arterial system showed remarkably few signs of age. The constant brain work through a long life of royal responsibilities, and the imperial events, domestic sorrows, and anxieties which have crowded into later years, may no doubt be held in some measure to account for this discrepancy between the cerebral and general vessel nutrition. Both the thoracic and abdominal organs showed no sign of disease. The dyspepsia which tended to lower Her Majesty's originally robust constitution was especially marked during her last visit to Balmoral. It was there that the Queen first manifested distinct symptoms of brain fatigue and lost notably in weight. These symptoms continued at Windsor, where in November and December, 1900, slight aphasic symptoms were first observed, always of an ephemeral kind, and unattended by any motor paralysis.

Although it was judged best to continue the negotiations for Her Majesty's proposed visit to the Continent in the spring, it was distinctly recognized by her physicians and by those in closest personal attendance upon her that these arrangements were purely provisional, it being particularly desired not to discourage Her Majesty in regard to her own health by suggesting doubts as to the feasibility of the change abroad to which she had been looking forward.

The Queen suffered unusual fatigue from the journey to Osborne on December 18th, showing symptoms of nervous agitation and restlessness which lasted for two days. Her Majesty afterwards improved for a time, both in appetite and nerve tone, in response to more complete quietude than she had hitherto consented to observe.

A few days before the final illness transient but recurring symptoms of apathy and somnolence, with aphasic indications and increasing feebleness, gave great uneasiness to her physician.

On Wednesday, January 16th, the Queen showed symptoms of cerebral exhaustion. By an effort of will, however, Her Majesty would for a time, as it were, command her brain to work, and the visitor of a few minutes would fail to observe the signs of cerebral exhaustion.

On Thursday these symptoms were more marked, with considerable drowsiness, and a slight flattening was observed on the right side of the face. From this time the aphasia and facial paresis, although incomplete, were permanent.

On Friday the Queen was a little brighter, but on Saturday evening there was a relapse of the graver symptoms, which, with remissions, continued until the end. It is important to note that notwithstanding the great bodily weakness and cerebral exhaustion the heart's action was steadily maintained to the last, the pulse at times evincing increased tension, but being always regular and of normal frequency.

The temperature was normal throughout. In the last few hours of life, paresis of the pulmonary nerves set in, the heart beating steadily to the end.

Beyond the slight right facial flattening there was never any motor paralysis, and except for the occasional lapses mentioned, the mind cannot be said to have been clouded. Within a few minutes of death the Queen recognized the several members of her family. — *British Medical Journal.*

HYPNOTISM IN FRANCE.

According to the *British Medical Journal*, by a recent decision the *Cour de Cassation* — which is the High Court of Appeal in France — has finally settled a question which has been left open ever since, six or seven years ago, two provincial assize courts gave contradictory decisions upon the question whether the treatment of patients by hypnotism or so-called "magnetism" constituted a breach of the law which forbids the practice of medicine by those who do not possess proper qualifications. The French law is so precise that there was no great difficulty in coming to this conclusion, the only defence being that the treatment of patients by hypnotism did not constitute the practice of medicine; but this contention was promptly set aside, as it cannot be maintained nowadays that medical treatment is limited to the administration of drugs. The French law restricting the practice of medicine to properly qualified persons is founded upon the principle that for the welfare of society no one should be allowed to exercise such delicate and important functions as are implied in the treatment of disease unless he has passed through as complete a training as the existing state of science can afford in all those branches of learning bearing upon the structure, the functions and diseases of the human body, as well as upon the actions of remedies.

METEOROLOGICAL RECORD

For the week ending January 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.0 P. M.	
S...20	30.47	13	29	3	84	80	82	W.	S.W.	18	13	C.	O.	
M..21	29.98	38	48	29	71	65	68	S.W.	S.W.	15	19	C.	O.	
T..22	30.31	32	43	22	76	73	74	N.	N.E.	15	10	C.	C.	
W..23	30.32	26	34	17	92	78	85	N.	N.	10	10	O.	O.	
T..24	29.91	32	36	28	88	91	90	N.	W.	18	10	O.	C.	.02
F..25	29.53	34	38	30	90	72	81	N.	N.	6	14	O.	C.	
S..26	29.85	30	36	24	81	76	78	N.	N.W.	15	12	C.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 26, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1482	390	22.07	17.28	1.48	.81	3.51
Chicago . .	1,698,573	—	—	—	—	—	—	—
Philadelphia .	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	225	63	21.31	22.20	—	.89	3.55
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . .	352,387	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	135	46	28.58	21.25	—	5.86	3.66
Washington . .	278,718	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—
Providence . .	175,597	95	25	16 80	28.35	—	2.10	2.10
Boston . . .	560,892	260	72	28.10	16.17	3.08	3.08	8.47
Worcester . .	118,421	33	10	18.18	12.12	3.03	—	3.03
Fall River . .	104,863	38	13	21.04	13.15	—	—	—
Lowell . . .	94,869	38	11	13.15	18.41	—	2.63	2.63
Cambridge . .	91,886	37	9	40.50	13.50	—	—	10.80
Lynn	68,513	—	—	—	—	—	—	—
Lawrence . .	62 559	21	7	9.52	14.28	—	—	—
New Bedford .	62,442	—	—	—	—	—	—	—
Springfield . .	62,059	25	2	16.00	8.00	—	4.00	4.00
Somerville . .	61,643	18	5	22.20	27.75	—	—	5.55
Holyoke . . .	45,712	—	—	—	—	—	—	—
Brockton . .	40,063	9	3	44.44	22.22	—	—	22.22
Haverhill . .	37,175	17	2	23.52	16.76	—	—	—
Salem	35,656	11	1	18.18	9.09	—	—	—
Chelsea . . .	34,072	11	1	—	—	—	—	—
Malden . . .	33,664	8	5	25.00	25.00	—	—	12.50
Newton . . .	33,587	11	1	9 09	9.09	—	—	—
Fitchburg . .	31,531	13	5	—	15 38	—	—	—
Taunton . . .	31,036	7	1	—	14.29	—	—	—
Gloucester . .	26,121	6	3	33.33	—	—	—	—
Everett . . .	24,336	12	7	24.99	16.66	—	—	8.33
North Adams .	24,200	7	3	42.87	42.87	—	—	—
Quincy . . .	23,899	8	1	—	—	—	—	—
Waltham . .	23,481	6	—	16.67	—	—	—	16.67
Pittsfield . .	21,766	—	—	—	—	—	—	—
Brookline . .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	6	5	16.67	16.67	—	16.67	—
Medford . . .	18,244	7	1	14.29	14.29	—	14.29	—
Newburyport .	14,478	2	—	—	50.00	—	—	—
Melrose . . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,572; under five years of age 695; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 579, acute lung diseases 461, consumption 290, diphtheria and croup 107, diarrheal diseases 56, typhoid fever 36, scarlet fever 34, whooping cough 14, cerebrospinal meningitis 9, measles 7. There were 34 deaths reported from influenza.

From whooping cough New York 6, Pittsburg 3, Boston and Cambridge 2 each, Providence 1. From cerebrospinal meningitis Boston, Worcester and Somerville 2 each, Baltimore, Providence and Gloucester 1 each. From scarlet fever New York 22, Boston 8, Revere 2, Worcester and Salem 1 each. From typhoid fever New York 12, Boston and Pittsburg 8 each, Baltimore and Providence 2 each, Lowell, Springfield, Chicopee and Medford 1 each. From measles Boston 4, New York 2, Pittsburg 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 12th, the death rate was 19.6. Deaths reported 4,442: acute diseases of the respiratory organs (London) 392, whooping cough 110, diphtheria 81, measles 66, diarrhea 56, fever 41, scarlet fever 35.

The death rates ranged from 12.8 in Huddersfield to 27.3 in Salford: Birmingham 21.4, Bradford 19.7, Brighton 16.7, Bristol 20.0, Cardiff 16.2, Derby 13.8, Halifax 13.7, Hull 18.4, Leeds 20.1, Liverpool 24.9, London 19.6, Manchester 22.8, Newcastle-on-Tyne 20.0, Norwich 21.5, Nottingham 22.7, Plymouth 18.6, Portsmouth 20.6, Sheffield 21.0, Sunderland 21.3, Swansea 19.9, West Ham 14.1.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 2, 1901.

W. A. McCLURG, medical inspector, commissioned a medical inspector, November 19, 1900.

H. O. SHIFFERT, assistant surgeon, ordered to the "Franklin."

E. J. GROW, assistant surgeon, detached from the "Culgoa" and ordered to the "Glacier," and also to duty at Olongapo, P. I.

J. COWAN, pharmacist, detached from the "Culgoa" and ordered to the "Glacier," and also to duty at the Naval Hospital, Cavite, P. I.

M. R. PIGOTT, passed assistant surgeon, died at Annapolis, Md., January 31, 1901.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 31, 1901.

MCINTOSH, W. P., surgeon. To proceed to Jeffersonville, Ga., for special temporary duty. January 30, 1901.

PERRY, T. B., surgeon. Granted leave of absence for thirty days from February 11th. January 30, 1901.

MCMULLEN, JOHN, assistant surgeon. Upon expiration of leave of absence to proceed to Wilmington, N. C., and assume temporary command of the service during the absence of Surgeon T. B. PERRY. January 30, 1901.

CORPUT, G. M., assistant surgeon. To proceed to Cleveland, O., and assume temporary command of the service during absence of Surgeon W. J. PETTUS. January 26, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., on Tuesday, February 5, 1901, for the physical examination of second Assistant Engineer R. F. HALPIN, Revenue Cutter Service. Detail for the Board: Surgeon PRESTON H. BAILHACHE, chairman; Surgeon G. T. VAUGHAN and Assistant Surgeon B. S. WARREN, recorder.

LECTURES ON THE NEUROSES AND PSYCHOSES OF SPIRIT AND DRUG DISEASES.

Dr. T. D. Crothers, of Hartford, Conn., will deliver a course of clinical lectures "On the Neuroses and Psychoses of Spirit and Drug Diseases," at the hall of the New York School of Clinical Medicine, 328 West 42d Street, New York City. The first lecture will be given February 18th, at 8 P. M. The profession is cordially invited to attend.

RECENT DEATHS.

THEODORE DE CLERMONT MILLER, M.D., of New York, died on January 28th, from pneumonia, at the age of fifty-nine. He was a native of Washington County, N. Y., and was graduated from Bellevue Hospital Medical College in 1866.

HOMER OCTAVIUS JEWETT, M.D., the oldest practising physician in Cortland County, N. Y., and one of the best known citizens in that section of the State, died from pneumonia at his home in the town of Cortland, on January 30th. He was born in Lebanon, N. Y., March 31, 1819, and had practised in Cortland since 1849.

STEPHEN CHANDLER GREGGS, M.D., formerly one of the leading practitioners of Brooklyn, N. Y., and highly esteemed as an obstetrician, met with a painful death at Nutley, N. J., on February 1st. Dr. Greggs had been helplessly paralyzed for some time, and, in the absence of his usual attendant, fell from an invalid chair into a grate fire and was fatally burned. He was a native of Pomfret, Conn., and eighty-one years old. He was graduated from Brown University and from the Medical Department of the University of the City of New York. He had practised in Brooklyn for forty-one years and retired about five years ago.

Original Articles.

A CASE OF CESAREAN SECTION FOR COMPLETE PLACENTA PREVIA.[1]

BY C. H. HARE, M.D., BOSTON.

Gynecologist to the Boston Dispensary and to Out Patients at Carney and St. Elizabeth Hospitals; Visiting Gynecologist to the Woman's Charity Club Hospital.

On October 24, 1900, Dr. Francis D. Donoghue read a paper before this society on "The Treatment of Placenta Previa by Cesarean Section." The paper can be found in the *Boston Medical and Surgical Journal* of December 6, 1900. In that paper the varieties, frequency, diagnosis, treatment and literature bearing on this subject are so fully discussed that they will not be repeated in this communication.

For the benefit of present and future study any new method of treating this most fatal complication of pregnancy certainly ought to be reported. So far as known, Dr. Donoghue's case was the fourth and my own the fifth case of placenta previa to be treated by Cesarean section, and I therefore desire to place on record a case in which the mother died in eleven hours after the operation and a premature child of about seven and one-third months died thirteen days after delivery.

Mrs. 2,318 entered the Carney Hospital about 2 A. M. November 9, 1900. She was sent in by Dr. Wm. H. Boodro, to whom I am indebted for the following history: She was born in Norway, age twenty-seven years, mother of two children aged five and two years, but the character of those labors is not known. She had had no abortions. The last menstrual period began March 26th, making the expected date of delivery December 31st. Dr. Boodro was first called about 2 A. M. November 8th; she had been flowing at times for twenty-eight days, and had once called a doctor. For three or four days before entrance there had been a constant slight flow, which became alarming after coitus a few hours before he was called. He found some clots but no dilatation and no pains. He made the diagnosis of placenta previa, explained her condition and danger, and advised her going to the hospital at once, but was flatly refused by herself and husband, and he then refused any further care or responsibility of the case; but he was again called about 1 A. M. the next night, when he was told that she had been having labor pains for an hour or two, and had flowed "quarts," as herself and husband put it. Dr. Boodro's examination showed a patient almost pulseless; the bed soaked with blood; many clots in the bed and filling the vagina; the os dilating. He at once sent for the Carney Hospital ambulance; firmly packed the vagina, but blood soon leaked through the packing; gave three pints of salt solution by rectum, and strychnia and other stimulants under the skin.

On my arrival at the hospital she was still bleeding freely. The os admitted the finger tip, which felt placenta entirely covering the cervix. The patient's pulse was 140 and very poor quality. The child was living, and though from the story it was about one and two-thirds months premature it was yet easy to think of the possibility that the child might be a month older than reckoned.

The case was certainly bad to face, either for a vaginal or abdominal delivery. It seemed to me the risks lay between rapid dilatation, version, delivery, and immediate intra-uterine packing to control the continued hemorrhage from a cervix probably torn, but certainly stretched and tired, against the risks of a Cesarean section; a known high mortality to both mother and baby by the intrapelvic route against a hoped for lessened mortality by Cesarean section even though such hope in the absence of reported cases was based on theory. I was in a hospital with everything one could ask at my disposal for a quick Cesarean section; it was my judgment that the danger would be about equal to the mother by either route, but less for the child by the abdominal route, and I advised Cesarean section, to which the patient gave consent.

She was at once sent to the operating room. The abdomen was prepared while ether was being given. A girl baby weighing five and one-half pounds was delivered in one minute and four seconds after the first incision in the abdominal wall. The baby breathed after a moderate amount of effort to resuscitate. The greater part of a very large placenta was on the right and posterior side of the uterus, but a smaller segment was attached to the opposite side, thus entirely covering the os. A few minutes were allowed for the uterus to contract and loosen the placenta and membranes, after which they were easily removed. The uterus contracted well. It was closed with two layers of interrupted suture of chromicized catgut. There was no bleeding from the incision in the abdominal wall, uterine wall, or placental site. From entrance to the hospital salt solution was given at intervals under the breasts, by rectum, and various stimulants hypodermically. After the uterus was opened a nearly constant stream of hot salt solution was poured into and upon it until the abdomen was closed, and the abdominal cavity was left filled with it. Ether was not well borne. The radial pulse was barely countable and intermittent before the first incision and at times during the operation could not be counted. The patient was returned to her bed one-half hour after beginning the operation. There was never any more vaginal bleeding. Pulse improved slowly. Temperature rose to 102.2°, then dropped to 100°. She rallied enough to inquire about the baby, and to talk with her husband. She was especially apprehensive about death and talked much about dying. After a few hours she became quiet and drowsy, but delirious when roused, and died eleven hours after operation. The baby left the hospital when eight days old, but died of acute inanition, we are told, five days later.

In looking back upon this case one can hardly help saying that this woman in all probability sacrificed her own life by refusing to follow the advice of Dr. Boodro at the time of his first visit. There is every reason to expect that a strong, healthy woman, which she is reported to have been, could easily have gone through a Cesarean section after the loss of a moderate amount of blood, since she survived the collapse before willing to go to the hospital, the continued loss of blood until delivered, and the shock of the operation for so many hours.

After reading statistics and cases and hearing the reports of other cases of complete placenta previa, I am led to believe that in most cases Cesarean section is fully as safe for the mother as delivery by the older methods and that Cesarean section will save far more babies — in fact, there should be almost no mortality

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

with viable babies delivered by Cesarean section. For cases where the mother is already collapsed from loss of blood we have some very bad statistics to argue for some new method of delivery; and with suitable surroundings and assistants I believe in Cesarean section. Taking cases as they come, with the life of both mother and baby to be considered, I believe Cesarean section will save more lives than vaginal delivery.

For the benefit of statistics to argue for my belief in Cesarean section I should have adopted vaginal delivery and in case of need let the fatality be lost in the large number already reported, and have awaited a more favorable case for a newer method of treatment. Until more cases are reported judgment must certainly rest between statistics and theory. Your severest criticism upon my judgment in this case is invited.

THE WOOLLEN YARN TRUSS IN INFANTILE INGUINAL HERNIA.[1]

BY E. S. BOLAND, M.D., BOSTON.

IT may be thought absurd to talk about hernia in this section, but as obstetricians we meet the congenital or infantile form often, and as the trusted family physician one ought to keep up with what is best to do for it until the little patients are well or old enough for operative interference for cure.

Malgaigen's statistics give 1 case of inguinal hernia out of every 21 children under one year old, and Bertillon believes that the proportion among poor and neglected children is relatively greater. Of course, a large percentage will recover spontaneously with little or no treatment, if hygienic conditions are observed, but doubtless the cure will be hastened or assured if some retentive means is used. The average mother has but little faith in the expectant treatment, and unless you are prepared with some very definite and promising statement and apparatus, she will not be apt to carry out your general hygienic directions.

The truss may be only a placebo, but even placebos are sometimes a necessity under conditions as we find them. If you fail to do something for the trouble, she will soon go to some one who will, and she may drift into less considerate hands.

It is hardly necessary to speak even briefly of the etiology of this form of hernia, but I think that so much has always been said about congenital anatomical conditions predisposing thereto that the fact is almost lost sight of that it is very often due to preventible conditions following birth. In treating such hernias, these predisposing or aggravating causes must be counteracted as much as possible to ensure a cure. Crying from colic, gaseous distention from indigestion or unsuitable food, coughing, straining from constipation or phimoses, vomiting, and rough handling or improper position in holding a baby may induce it, and must be avoided by general hygiene.

Ochsner insists, in addition, on the horizontal position in bed for at least six weeks, with the foot of the crib elevated so as to keep the hernial sac emptied and so allow nature to obliterate the canal.

Excluding strangulated hernias, which in infancy are fortunately rare, and call, as in the adult, for prompt surgical treatment, the great majority of these hernias can be retained by simple apparatus, and the emptied sac collapsing is obliterated by adhesion of its walls, fat accumulation or what not. To secure this end, the worsted skein truss has much to recommend it in the first year, when the frame is small, thin in flesh and tender to mechanical pressure or irritation. It is easily made to measure at the bedside, and afterward can be reduplicated by the mother at a cost of a few cents, so as to have several changes at hand. It must be worn day and night, even during the bath, and only removed when wet or soiled.

It does not annoy the child, and its use ensures the hearty co-operation of the mother in carrying out the equally important corrective measures. Before applying it, be sure to exclude undescended testicle or encysted hydrocele of the cord. Difficulty of reduction ought to suggest these conditions rather than a hernia.

To ensure success the protrusion should be slowly and thoroughly replaced, and the truss adjusted so as to retain it and still not be tight enough to chafe or annoy the infant. Although so cheap and simple, some skill is needed in making and using this skein truss.

Measure with a tape line the distance around the child on the plane of the pelvic inlet, beginning with and coming back to the hernia, then carry the line down on the perineum and up and out in the glutofemoral crease and almost to where it would touch the girdle part. Mark this length on the woodwork of the door or window casing, and at each end of it drive in a three-inch nail half way to the head. Over these nails wind the worsted, previously rolled from the skeins as bought, just tight enough to keep from kinking, and use thirty to forty threads according to size and strength required. Remove the skein, tie in the two loose yarn ends, and in one end loop a foot of white tape, and the truss is ready.

Carry it around the child with the long end at the affected groin, pass this longer end through the other loop and draw the long end down under the corresponding thigh and out and up in the gluteofemoral crease and tie the tape to the girdle. The doll which will be passed around will be the best means of illustrating the application. The doubled and loosely twisted yarn is so elastic that it will keep up a constant hug that will take up any slack made by the motion of the child. To the medical, or rather the surgical mind of today, the brilliant results of aseptic operations for radical cure make any other way look like a makeshift. But to the timid and solicitous mother, the fear of the knife, and especially the possible removal from home of the infant for operation, renders the tentative use of the truss a necessity.

Its use must be coincident with general measures to reduce intra-abdominal pressure to ensure the best results. Though this home-made affair has been before the profession thirteen years (since Pye described it in 1887) it is not as well known even yet as it should be.

Dr. W. J. Taylor, who wrote the hernia article for Keating's Encyclopedia of Diseases of Children, said that he had used it but once, and in Dr. J. A. Ochsner's admirable paper, read last June at the American Medical Association, he does not even mention it at all.

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

It is useless to take your time in detailing my 4 successful cases, for they are all practically alike. All were boys, the trouble was recognized early, the protrusion returned without difficulty and retained by the skein truss under the watchful eye of the mother. In fact, one mother, a trained nurse, by the way, was so anxious to ensure a cure and avoid operation that, having moved out of my neighborhood, she continued the use of the truss on her boy until at five years he began to kick on his own account against wearing it longer. Usually a cure can be effected in a year or less, but the continued use of it causes but little inconvenience. In 2 cases it failed, the children being somewhat older and their mothers inattentive. In 1 case I failed to recognize an encysted hydrocele of the cord, and in spite of my failure to reduce it, tried the truss on it with no result. Another practitioner proved equally lacking in acumen, and also failed to recognize the true nature of the tumor and to relieve it. This case turned up at the Children's Hospital on Huntington Avenue, and was promptly recognized and operated on successfully. I mention this case to show the ease with which one can be mistaken in such cases.

Résumé. — (1) The use of some retentive apparatus will hasten and assure the natural tendency toward cure in infantile hernia; (2) the worsted yarn truss is easily made to measure at the bedside; it is cheap, comfortable and can be worn by frail or delicate infants, where the ordinary truss is useless or too irritating; (3) with this or any other truss vigilance and intelligence must counteract the underlying or associated causes of the hernia.

DISINFECTION WITHIN OR WITHOUT THE BODY IN DIPHTHERIA.[1]

BY M. A. VEEDER, M.D., LYONS, N. Y.

The effectual control of diphtheria in an individual or a community is a problem that is exceedingly complex. Really, there are at least three forms of disease that have been confounded under the name of diphtheria. It is only since bacteriological methods of study have come into use that these have been distinguished from each other with precision, they formerly having been regarded as modifications of the same disease, rather than as separate diseases. They are diphtheroid, characterized by the presence of staphylococci mostly; true diphtheria, characterized by the presence of the Klebs-Löffler bacillus; and septicemic sore throat, characterized as a rule by the presence of streptococci.

Although these diseases occur separately from each other, they are nevertheless often associated in a characteristic way. Diphtheroid predisposes to the onset of diphtheria, so that if a patient having the former is exposed to the infection of the latter, diphtheria begins at once without an incubation period. In like manner either diphtheroid or diphtheria may prepare the way for septicemic sore throat. Indeed, it is doubtful whether streptococcus infection can establish itself in the throat at all without some pre-existing disease, or lesion of the parts, just as erysipelas starts from some small scratch or puncture. Thus the septicemic form of sore throat, although very fatal, is not very contagious.

Diphtheroid is a harmless affection except as it predisposes to diphtheria, or septicemic sore throat, or both. Diphtheria in and of itself is dangerous, but is most dangerous if it becomes the channel through which septicemic infection gains access to the body.

As against the streptococcus infection, antitoxin is powerless, but the antistreptococcus serum may be used with good effect. It is a peculiarity of the streptococcus to locate itself in the exceedingly tough and foul-smelling membrane that is characteristic of these cases. Hence the application of strong disinfectant remedies accurately to this membrane, as, for example, painting it with pure carbolic acid, has appeared to be of service, this being a measure not to be recommended in ordinary diphtheria.

Erysipelas, puerperal fever and septicemic sore throat are all forms of streptococcus infection, closely related to each other. Indeed, all these diseases may originate each other, the liability so to do depending upon the location of the infection in or on parts of the body accessible to touch rather than upon differences in the nature of the infection itself. The physician attending cases of either of these kinds, for his own security and that of his patients, must apply the principles of surgical cleanliness accurately and completely. It may become necessary to go so far even as to abstain from seeing cases of ordinary diphtheria, lest they become septicemic through contact of the physician in attendance upon erysipelas, puerperal fever, or septicemic sore throat. During epidemic prevalence of diphtheria the occurrence of diseases of either of these classes may have a special significance, and should be carefully watched, with full understanding of the danger involved.

Furthermore, every surgeon knows that the danger of septicemia is very much increased if operations are undertaken in buildings where the plumbing is bad, and where there are untrapped drains. It is true that antiseptic dressings decrease the risk somewhat even under the most unfavorable surroundings, protecting the wounded surface more or less completely. But a sore throat cannot be protected every hour and minute as is done by such dressings, and if that throat be diphtheritic, the barriers against septicemic infection are as absolutely down as though there were an open wound. The traditional prejudice against foul drains and the like as a source of specially malignant diphtheria is not without warrant. Indeed, such receptacles and not the throat itself appear to be the natural habitat of infection of this class. If carried on the person it is by accident rather than as a part of the usual life history of the streptococcus infection.

The Klebs-Löffler bacillus, on the other hand, appears to find its natural habitat in the throat, it becoming more or less atypical when grown in culture media outside the body. Although irregular in form, and having its presence masked by that of other microorganisms, there is nothing to prevent its growth in the albuminous matter crusting the interior of drain pipes that are never cleaned or flushed, unless it be too low a temperature at times. But the dried sputum from a diphtheria patient kept at ordinary temperatures has been found capable of originating living colonies of the bacillus for six months. This being

[1] Read at the meeting of the Medical Society of the State of New York, January 29, 1901.

the fact, the Klebs-Löffler bacillus certainly could remain alive perhaps from year to year in underground drains, although leading a fluctuating and precarious existence. Such receptacles are especially liable to contamination through rinsings or expectoration from the mouths of persons having diphtheria, and thus also the infection may be renewed and kept alive, the persons living on the premises originating their own antitoxins and becoming immune. Where this has happened, quarantine and antitoxin, no matter how carefully applied with the aid of bacteriological tests, fail to eradicate the disease completely. The writer has encountered what appear to be beautiful illustrations of this in three or four large institutions.

In an emergency of this sort, where it is not possible to wait for improvement of drain pipes and plumbing, it is well to know that such fixtures when incapable of being flushed adequately can be sterilized by the aid of chlorine gas. In the presence of the septicemic form of sore throat especially this resource may be of the highest importance.

Nor is the diphtheroid form of sore throat unimportant. This form of throat trouble is much more common at all times than is generally supposed, not attracting attention, recovery being so rapid, unless the more serious diseases of the throat become prevalent, whereupon numerous cases of this sort are brought to the attention of the physician, and are commonly classed as diphtheria for reasons that will appear shortly.

As has already been intimated, diphtheroid predisposes both to diphtheria and to septicemic sore throat, shortening the incubation period to such an extent that the bacteriological test may show the throat clear from diphtheria one day and strongly infected the next. There being such increased susceptibility, a diphtheroid case may readily become diphtheria in the very act of examination unless adequate precautions are taken.

The fact that the physician's own throat is not red or sore is not proof that it is not infected, for infection often occurs without symptoms, particularly in adults when strongly exposed, and there is no stronger exposure than to receive the spray that comes from the mouth and nostrils of a child that is crying and coughing, as they often do, during an ordinary examination of the throat. The writer has met with very conclusive evidence that such particles of spray floating in the air are able to convey the Klebs-Löffler bacillus a distance of several yards. If the physician thus infected during an examination goes to another case without proper precaution, even though it be at an interval of several days, his own breath and the spray from his lips in the act of talking, if nothing more, may convert a case of harmless diphtheroid into severe diphtheria in an hour.

This is the danger also that militates against the use of the bacteriological test to determine whether quarantine shall be established or not. Such testing can be relied upon with confidence at the outset of quarantine only when it can be known with certainty there is no secondary source of infection such as that just described. In other words, unless physicians in attendance upon cases of diphtheria, or moving about in a community where there is diphtheria, have their own throats tested in order to see whether they themselves are clear of infection, and especially whether any precautions they may take are adequate, it is better to regard all cases of diphtheroid as diphtheria, provisionally, using the bacteriological examination mainly for the removal of quarantine rather than for its establishment. If these suggestions are followed out thoroughly there may be a surprise awaiting not a few members of the profession. The very anxiety that leads to seeing cases frequently and testing and examining them often may be a means of spreading the disease.

The routine that the writer has been led to adopt is to be provided with squares of antiseptic gauze and corrosive sublimate tablets. A square of such gauze may readily be held over the mouth and nostrils with the left hand, while the right hand is free to use the tongue depressor or swab. Both hands and face should be wet with the sublimate solution before and after the examination, and the gauze may be burned after being used. This, together with frequent spraying and cleansing of the mouth and throat and nostrils, and bacteriological testing, affords very complete security against either giving or receiving infection.

There are many precautions that will readily suggest themselves in regard to the care and disinfection of articles that have touched the mouth and lips, and on which infection may remain for extended periods in the form of dried saliva. Perhaps the worst of all such articles is an ordinary lead pencil, the use of which should be absolutely forbidden every diphtheria patient.

The infection of milk through the agency of some one having a diphtheritic throat coughing or sneezing while handling it seems to have occurred in a case or two that have come to the knowledge of the writer. Sterilization of milk by boiling is the proper method during diphtheria epidemics, and always.

As regards ridding the mouth and throat of the in fection, there are a few points that deserve more extended notice than can be given them on this occasion. Especially important is the behavior of the diphtheria bacillus where there are cavities in the teeth. In such cases the person thus infected becomes immune as if from antitoxin, but there is frequent recrudescence of sore throat trouble, more or less typical in its resemblance to ordinary diphtheria. Often there are red spots somewhere near the bad tooth, or exactly opposite it on the interior of the cheek. These come and go, and there may be evanescent traces of membrane on the tonsils at intervals of weeks or months. Bacteriological examination at times shows the presence of the bacillus and at times its absence. Sometimes it can be found by inserting the swab into the tooth cavity when not apparent elsewhere in the mouth. A very interesting case of this sort under the observation of the writer, after an exceedingly prolonged quarantine, infected another person through the intermediary of a lead pencil, showing that although the bacillus had been present and absent in a curious way, and the throat symptoms had varied fitfully, that nevertheless there was true diphtheria infection throughout a period of at least four months. In this case there was a deep cavity between two teeth and recovery was not perfect until the tooth itself was removed.

In these cases the bacillus appears to be nourished by fresh supplies of particles of food, such as meat and potato, lodging in the cavity, as in a culture tube at each meal. Thus the process is perennial, and the

infection does not die out as it does when the throat alone is infected. It would seem that sterilization of the tooth cavity by cauterization would reach the source of the trouble at once, but it does not, the few bacilli remaining elsewhere in the mouth apparently reinfecting the cavity. A better plan is to insert a pledget of cotton saturated with some disinfectant solution before and after meals. Even then in very bad cases it may be necessary to have the tooth extracted.

An observation of this sort is very suggestive as to the amount of care required to be of any material service in ridding the mouth and throat of diphtheria infection by methods of disinfection. The perfunctory use of sprays, swabs or gargles accomplishes so little, apparently, in shortening the time of quarantine that some physicians practically have come to rely on giving the antitoxin and waiting. But where the infection is harbored and kept alive in the manner that has just been described, neither the antitoxin nor waiting will ensure recovery within any reasonable length of time. Meanwhile the person may have infected unconsciously an entire neighborhood or town.

Very likely the bacillus when lodged in the spongy portions of the tonsils, or in some fold behind the palate, or in the nostrils, will die out gradually as the person becomes immune, but the process of its removal may be hastened and made more secure by constant sterilization of the parts as far as possible. Remedies for this purpose should not be irritating, so that they may be employed constantly at very frequent intervals, the growth of the bacillus and its diffusion through the mouth being very rapid Peroxide of hydrogen made alkaline by lime water, or by the addition of equal parts of Dobell's solution, is very good. Freshly made chlorine water with the addition of a little tincture of iron is highly efficient. A soft camel's hair toothbrush kept in a two-per-cent. solution of carbolic acid and used with a lather of castile soap is of great service, as is also dental floss drawn between the teeth. Such measures persisted in will clear up the most refractory case as determined by bacteriological examination, as a rule, in about a month, very few cases showing perfectly clear in as short a time as three weeks.

It has been the purpose of the present discussion to outline a few leading features, so that whatever measures of disinfection are adopted, whether within or without the body, they may be used with full knowledge of the dangers and difficulty and complexity of the subject of the control of diphtheria.

Clinical Department.

A CASE OF IDIOPATHIC DILATATION OF THE COLON.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

The following case will show, I think, that there is much to be learned about dilatations of the colon and the so-called phantom tumor. The patient presented in the first place symptoms so suggestive of chronic appendicitis that her surgeon removed the appendix (January 13, 1899). This operation — beneficial for a short time, through suggestion perhaps — was not permanently successful. The symptoms returned, and the smooth, symmetrical, tympanitic enlargement of the abdomen convinced Dr. Fitz that the lesion was an idiopathic dilatation of the colon. On April 5, 1899, I opened the abdomen between the umbilicus and the pubes, and found a great dilatation of the sigmoid flexure. The dilated bowel filled the lower abdomen, and caused the enlargement observed by Dr. Fitz. It was not, however, such an excessive dilatation as I had already described in a case published in the *Transactions of the American Surgical Association*, 1892 — a tumor of the sigmoid flexure practically filling the whole abdominal cavity, crowding or compressing all other viscera against the abdominal parietes and itself rotated and obstructed. It was rather a conspicuous enlargement of the flexure, which, thickened, distended and bulging, formed within the abdominal wall a tympanitic tumor easy of inspection and of palpation. I removed this coil and sewed the lower extremity of the descending colon to the beginning of the rectum, making a straight, cylindrical passage where had been the tortuous and distended sigmoid coil.

The patient was immediately relieved of her symptoms and of her tumor. It was not many months, however, before she began again to complain of her pain and discomfort. The abdomen became more and more prominent, until she presented all the physical appearances of an excessively dilated coil.

I had this patient under frequent observation. She was able to perform light household duties. She was never free from abdominal discomfort and pain. The bowels were very hard to move. The abdomen presented a symmetrical enlargement — a rounded tumor, almost spherical, with its greatest prominence below the umbilicus. The tumor was tympanitic without tenderness — resistant, tense. It could not be felt bimanually. Examination always gave me the impression that if the abdominal muscles could be relaxed, the tumor would disappear. Indeed in the early history of this case the tumor would, under anesthesia, disappear. At the three last operations, however, the outline persisted under ether, though as a whole the abdomen was perhaps not so prominent. The great thickening and distention of the coil made it a real tumor — one that could be made to disappear only by emptying it or by removing it. In other words, it had assumed characteristics of a real physical entity, rather than of the disappearing phantom of its early history. How much effect the contractions of the abdominal muscles had on the outlines of the tumor, I cannot say, but I believe that they had much influence. The phantom is formed by a dilated intestine under a spasmodic abdominal wall. The spasm of the abdominal muscle is doubtless secondary to the intestinal lesion, and dependent upon it. It is involuntary and absolutely beyond the patient's control. When the intestinal dilatation is moderate and distributed throughout a considerable portion of the colon, relaxation of the muscular spasm is followed by a flattening out of the dilated bowel and disappearance of the tumor. When, however, the dilatation is excessive and limited to a single coil or small area like the sigmoid flexure, and especially if the gas does not escape from the dilated coil, relaxation of the muscular contraction produces no change in the contour of the tumor. I believe that the phantoms are early and moderate dilatations of the colon, and that

[1] Read at the Boston Society for Medical Improvement, November 12, 1900.

such disappearing tumors will sooner or later become real ones, removable only by excision.

Mary K.'s history bears out this belief. At the exploratory laparotomy of April 7, 1900, a large, dilated and thickened coil presented itself in the lower abdomen. Though this portion of the bowel had surprisingly few adhesions, it was deemed best to do nothing more than to separate them and make the coil perfectly free. The operation was a complete failure. Another attempt was made on June 27, 1900. Before attacking the tumor, I made a thorough survey of it. At the line of suture of the first resection — which, it will be remembered, made a straight passage from the descending colon to the rectum — a new coil had appeared, around the central portion of which could be seen the scar of the suture line. Not only had a dilatation begun here, but it had bulged and spread until a new sigmoid flexure had appeared, and one so large that it filled pelvis and whole lower abdomen.

This extraordinary sequence suggests more questions than answers. Why should the intestine become dilated again at the same point as before? For the same reason that it was dilated in the first place? It would seem only common sense to say that it was and for the very same reason. In sigmoid flexure dilatations, for instance, the obstruction is in the first instance dependent upon the shape and size of the coil, by which it becomes overdistended and sagging, perhaps kinking partially its outlet, obstructing its circulation — in a word, undergoing mechanical changes secondary to causes within itself. Such an explanation, though a matter of theory, seems one of common sense. Why then should a straight cylindrical coil, without lax and redundant walls, leading straight to an unobstructed rectum, dispossessed of mesentery and the power of accumulating feces — why should such a coil become distended to the extraordinary length of fifteen inches, and to a diameter sufficient to fill the lower abdomen, and that in this brief period of one year?

The explanation of the dilated and hypertrophied coil lies in the existence of some kind of a chronic intestinal obstruction, the nature of which we do not as yet understand. I have seen recently a sigmoid flexure leading down into the pelvis, dilated and thickened to an excessive degree. The patient had no symptoms referable to her large intestine — I do not know even that she was constipated. The condition of the sigmoid flexure and of the colon was not unlike that here described in the case of Mary K., except that it was less in degree. The abdomen was opened for the removal of the uterus from an exsanguinated patient. The pelvic portion of the sigmoid flexure was so large that it interfered much with the operation. I had been so much interested in dilated colons that I made a careful examination of this one. The bowel was much enlarged and its walls had the excessive muscular hypertrophy seen in chronic intestinal obstructions. The colon itself was elongated and tortuous. No obstruction was found in the pelvis. There was no opportunity to get a history bearing upon this case, but I believe it will appear that this patient had been habitually constipated and that there had been excessive gas formation. Though the sharp bend in the rectum presents ordinarily no obstruction, yet in certain cases it seems to me it must have some retarding effect upon the intestinal flow, especially when there is also an enlarged and retroverted uterus. Once the sigmoid flexure becomes dilated it is easy to imagine those secondary changes dependent upon the sagging of an overloaded and heavy coil.

Once having failed in this case to remove the cause by extensive resections — whatever the cause may have been — is it justifiable again to remove the resulting dilated bowel? It was with extreme reluctance that the idea of resecting the presenting coil was considered. Dr. Williams suggested that we reduce the size of the coil by numerous transverse infoldings. This seemed a happy thought. Dr. Jones, Dr. Williams and myself each took a line of infolding, and in a very short time the convexity of the dilated coil was so reduced that its course was a moderate curve from the pelvic brim on the left to the rectum. This operation was, however, completely ineffectual. The tumor remained; the pain and the discomfort persisted; the disability and discouragement continued. We were, therefore, forced to another, and, I hope, final operation. The dilated bowel was again completely excised after its relations especially with the rectum and uterus had been accurately determined. The bend in the rectum was repeatedly examined for a possible obstruction at that level, but nothing abnormal was found. The uterus was large and heavy, pressing backward upon the rectum. This position of the fundus seemed a possible cause of obstruction, and it was therefore stitched to the abdominal wall. Besides the new coil, the whole large intestine was to a certain extent dilated. It crossed from right to left in large and loose folds. This enlargement did not seem to me pathological. Though it was suggested to make an anastomosis between the cecum and the descending colon, I did not see prospect of enough gain to justify the risks of this, in my experience, dangerous operation. The patient has made a steady but slow convalescence. The abdomen, though full, has lost entirely its tumor outlines.

What the outcome in this case will be can be only conjectured. The operation seems very severe for the lesion. Though in many cases palliation may suffice, occasionally the surgeon will be driven to heroic measures. My experience in a previous case of perfect recovery after resection made me perhaps too sanguine in the present one. The operations were not performed in the second case, however, until the patient had convinced everybody of the hopelessness of medical treatment.

February 11, 1901. Since leaving the Deaconess Hospital, this patient has been complaining constantly of severe abdominal pain. The distention of the abdomen has in a large measure recurred. The patient's general condition is good, but the local trouble is little, if at all, better than in the first place. The abdomen is full, firm and tympanitic. The enlargement seems caused by tense and distended intestinal coils. It seems hardly possible that the transverse and ascending colon can have become distended enough to cause her present condition, or that a third sigmoid flexure can have appeared.

SOCIETY FOR THE STUDY OF TUBERCULOSIS. — We learn from the *Philadelphia Medical Journal* that a society for the study of tuberculosis, which takes its name from Laennec, the discoverer of auscultation, has been organized in connection with Johns Hopkins Hospital, Baltimore.

PLACENTA PREVIA CENTRALIS: REPORT OF A CASE.[1]

BY JOHN W. DEWIS, M.D., BOSTON.

I WAS called about 5 A. M., October 26, 1900, to see Mrs. C., who was "flowing." The husband, who was the messenger, said his wife was bleeding "very much, very much," and pleaded that I come quickly. As he expressed it, the blood came "as though poured from a bucket." The place was only a little way from my office, and I was soon there. I found the woman almost *in extremis*, and immediately sent for Dr. Dearing and Dr. Kepler. Assistance from the family or friends could not be considered.

The patient was a well-developed, well-nourished Jewish woman — a regular Amazon in build — thirty-six years old. She had three children, all normal births, the youngest child being three years old. There had been no miscarriages, no irregularities of menstruation. She was supposed to be within a week or two of full term. There had been no hemorrhage throughout pregnancy, no untoward symptoms. This morning about 4 A. M., she awoke and found herself bleeding, but had no pain. The hemorrhage increased rapidly, but had ceased when I arrived, though there was evidence that she had lost a great deal of blood. The face was dusky, cold sweat stood on her brow, and the skin of limbs felt clammy. Pulse was 124, and very poor in quality. I listened for fetal heart, and thought I could hear it just below umbilicus. The patient had no heart lesions.

As soon as I could prepare, I made digital examination, and found os dilated to about the size of a fifty-cent piece, and filled with a bulging mass that felt like placental tissue. It was an extreme case, and, Cesarean section being considered impracticable, I concluded to dilate cervix and deliver as quickly as possible. While waiting for medical assistance, I prepared 2 quarts of normal salt solution, and gave about 6 ounces per rectum, then a hypodermic of strychnine sulphate, gr. $\frac{1}{15}$, combined with atropia sulphate, gr. $\frac{1}{50}$, followed by another of digitalis, gr. $\frac{1}{25}$, combined with cocaine muriate, gr. $\frac{1}{4}$. A few minutes later ether was administered by Dr. Kepler, and I turned and delivered a living child. The whole time occupied was about three-quarters of an hour from arrival at house. As hemorrhage had recommenced, I began to dilate cervix without waiting for anesthesia. The placenta seemed to cover the whole lower uterine segment. I went up with my right hand to left, between placenta and uterine wall, the border of placenta being about a finger's length up. I found feet near fundus — an O. D. A. or O. D. P. — and brought down right foot and a hand. During dilatation there was moderate hemorrhage, checked by advent of child's buttocks. In a few moments the head was delivered, and with it about two-thirds of placenta. A hemostat was placed on the cord, and the child, though much blanched, soon responded to external stimulation and artificial respiration. After remaining portion of placental tissue, which was on right side, and some membranes were removed from uterine cavity, I gave a hot douche of permanganate of potash, 1–3,000. The uterus contracted well, and there was no further hemorrhage.

The mother's condition now seemed better than before delivery; pulse about 130, but much improved in quality, due probably to administration of ether. I again gave, per rectum, salt solution combined with whiskey, which was retained. There had been only primary anesthesia, and no vomiting followed. About half an hour after delivery, the patient was given, by mouth, a teaspoonful and a half of fluid extract of ergot, and a little later, a hypodermic of strychnine, gr. $\frac{1}{30}$. Salt solution by hypodermoclysis was not thought advisable, as patient was comfortable, and seemed to be doing well. I remained with patient about two and one-half hours, watching pulse, uterus, and general appearance. During this time, pulse increased to about 135, and at times grew very weak, though never intermittent. She was given frequent sips of whiskey with water and a pinch of salt added. There was some thirst. At 9 A. M. the salt solution was repeated, per rectum, and a solution of strychnine, gr. $\frac{1}{30}$, given by mouth. Patient felt comfortable. I decided, however, to try salt solution subcutaneously, and went to my office for tablets, leaving patient in care of two intelligent women. I had only reached the house when the husband was after me, saying wife was "taken bad." I hastened back and found her pulseless and gasping, and in a few moments she was dead.

I was told that I had only gone from house when patient began to complain of pain in chest and stomach, and "bad feeling"; then suddenly catching at her breast, with a cry, she sat up in bed, and fell back senseless. There was no post-partum hemorrhage. The uterus contracted and remained so, as in any favorable case. The napkin, examined after death, was only moderately soiled, and there were no clots in uterus. Autopsy was not permitted, but I believe the sudden death due to embolism. The child died on the fourth day, but with proper care might have lived.

The point that stands out most clearly in the history of this case is, that there had been no hemorrhage, no warning of danger throughout pregnancy, and yet this proved a complete "placenta previa." Cesarean section might be advocated in such cases, but I believe nothing could have been gained by the operation in this instance, where the pelvis was large, and the demand for immediate interference was so urgent that scarcely any of the ordinary preparations for laparotomy could have been made. In the majority of such emergencies, however, Cesarean section would seem the choice, and the time cannot be far distant when it will be considered necessary for the general practitioner, who does obstetrical work, to be competent to do this operation.

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

A CASE OF COMPLETE PLACENTA PREVIA.[1]

BY FREDERICK COGGESHALL, M.D., BOSTON.

ON the night of November 18th, I was called some distance into the suburbs to see Mrs. S. The message simply said that she was in labor and having a hard time. I went expecting at the worst a forceps case, but took the precaution to take a nurse with me, as I knew nothing of the one I was told was on the case. I found a well-developed, well-nourished woman of thirty-three, who had been in labor with her sixth child for six hours, and had been flowing very freely from the beginning of the pains. At the onset of the labor

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

she had sent for an irregular practitioner who was engaged for the case. He had, after watching her for a time, given a very unfavorable prognosis, packed the vagina tightly with gauze and administered hypodermically something, as I was told, to stop the pains. As the family had been alarmed he had been dismissed, and they called me in. On my arrival the patient was blanched, with a feeble, rippling pulse which could not be easily counted or even felt. The bedding and mattress were soaked with blood, which was continuing to trickle out through the gauze. No contraction of the uterus had occurred for the last half hour which was severe enough to cause pain. The patient was only partially conscious, having just recovered, I was told, from a fainting fit. Pupils widely dilated. She seemed to me to be *in extremis* from loss of blood and if I waited to send for assistance it would evidently be too late. I therefore went ahead as best I could with the help of the two nurses. Before stopping to examine her I started the subcutaneous injection of decinormal salt solution. In preparing this I did not stop to sterilize the water. The delay was out of the question, and I took my chances. I used Dr. C. G. Cumston's solution for preparing salt solution, which was administered under both breasts and underneath the loose skin of the back at the same time by means of a three-way tube of a pattern contrived for me by Dr. Wm. H. Grant for the rapid administration of salt solution. The foot of the bed was raised. At the same time a tenth of a grain of strychine nitrate administered subcutaneously.

While the salt solution was being given I removed the packing and examined the patient. The os was dilated to something more than the size of a half dollar. The finger on being passed into the os did not encounter the membranes or the head, which could be felt externally well down to the pubis on the left, but came in contact with a soft, spongy, irregular surface completely covering the opening and through which the head could not be distinctly felt. This confirmed my first impression from the hemorrhage, that I had to deal with a case of placenta previa. By the time I had washed up and examined, the greater part of the salt solution had got in and I decided to empty the uterus as quickly as possible. The pulse had now considerably improved, though it was yet extremely feeble, about 150. The patient was still but half conscious. The side of the bed was now raised and she was placed across it. As the only chance of stopping the hemorrhage seemed to be to get the child out at once, I did a rapid manual dilatation, tearing the cervix deeply in three directions; I then swept the hand rapidly around, detaching the placenta, and tried to push it to one side; as it would not be gotten out of the way, I seized it on the inner side near the cord and dragged it out, grasped the child by the feet and did as rapid a podalic version as possible, and extracted the child without much regard to anything but the saving of time. The perineum was a complete wreck from previous labors, which facilitated my operation considerably. Much to my surprise, the child was not quite dead on delivery, but it was as much blanched as the mother. I felt compelled to leave it to the care of the untrained nurse, while with the other I devoted myself to the mother, who had again become pulseless and was entirely unconscious. The salt solution was repeated with some more injections of strychnine, and an enema of two ounces each of brandy and fluid extract of ergot with salt solution to make a quart was given.

As the patient had stopped breathing, although her heart could still be faintly heard, though not counted, artificial respiration, including the Laborde method, was applied. After a half hour's work her pulse began to be perceptible and she was evidently reviving. The uterus, which had received a very hot douche of 1–1,000 bichloride the instant it was empty and had then been packed with gauze on which I had emptied a two-ounce bottle of liquor ferri chloridi, had contracted down to extreme hardness almost at once, and the hemorrhage was all over within, I should say, two minutes after the child was out. The child, which had breathed well at first, had lived about half an hour, and was dead before I dared to turn to it. If I had had sufficient skilled assistance I believe it also might have been saved.

The mother remained in an extremely precarious condition for the next two days, but slowly recovered. Strange to say, there was no sepsis. The points at which the salt solution was injected were no sorer than is often the case after proper sterilization, which may be thought by some to be due to thorough local inunctions of Credé's ointment which were begun at once.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

(Concluded from No. 6, p. 142.)

ABDOMEN OBSTIPUM.

HABS[29] reports a case of a six-months-old child with extreme contraction of the right rectus abdominis, resulting in extreme kyphosis. The muscle was extirpated and a complete cure ensued. The pathology was unknown; perhaps an intra-uterine myositis.

THE ANTERIOR SUPPORT OF THE FOOT.

Seitz,[30] after a thorough investigation, convinces himself of the existence of convex transverse metatarsal arch in 50% of all cases, the highest point being the head of the third metatarsal. The head of the first metatarsal bears more weight than that of the fifth. The tuberosity of the fifth metatarsal does not furnish a support for the weight of the body. The heads of the second and third metatarsal, contrary to a common opinion, do not furnish, as a rule, points of support for great weight, though they form segments in the arch. In 20% of the cases the head of the third metatarsal is found to have dropped, and in some cases the head of the second metatarsal also.

OBLIQUE OR UPRIGHT WRITING.

Schubert[31] has investigated a number of children in the schools in Nüremburg, to determine the effect on the position of the children of the different styles of writing. He finds that the inclination of the head to the side, rather than the upright and proper position

[29] Zeitschr. f. klin. Chir., 1899, S. 304.
[30] Zeitschr. f. orth. Chir., 1900, Bd. viii, S. 37.
[31] Ref. in the Zeitschr. f. orth. Chir., 1900, S. 152.

of the head, is more frequent in oblique than in the upright writing, the symmetrical position of the head being two and one-half times more frequent in the upright writing than in the oblique writing. In the position of the shoulders, only a third of the children held their shoulders in proper position in the oblique writing, while one-half held them properly in the upright writing. The position of the shoulders, however, was better in both groups than the position of the head. Obliquity of the head was not only more frequent, but was in a greater degree in the oblique writing than in the upright writing. The same is true of the forward bending. In upwright writing only 11% of the children were nearsighted; in the writing 15% and in the changing position 12%.

CONGENITAL ELEPHANTIASIS.

Froelich[32] reports a case of marked hypertrophy of the left leg, with a tumor of the dorsum of the foot and a second on the front of the lower leg. Elsewhere all the cellular tissue thickened and enlarged. A like condition on the other leg, but less marked. Deformities of the fingers and toes added to this. The tumor-like masses limited by deep constrictive bands. The author thinks the condition a lymphangiomatous one, due to the circular constrictions.

A like case of Reinbach's showed on microscopic examination a fibroid and lymphatic hypertrophy.

Jonan[33] reports 2 cases of hypertrophy of limb, and suggests a classification as needed; none suggested. The first case was a new-born infant, with hypertrophy of the left arm and a lymphangiomatous tumor of the left pectoral and axillary regions; the second a boy of three, with hypertrophy in volume and girths of both feet. No histological data.

Kirmisson[34] reports an interesting case of combination of congenital deformities of the supposed amniotic series. Amputation of one leg, a deep crease surrounding the other, syndactylism of the fingers of one hand, an annular constriction (slight) about one arm. A similar condition on one of the toes and a webbing between two other toes. He makes this case an argument to support his contention that syndactylism is of two classes: one where the condition is a persistence of the membrane which normally unites the fingers and toes in early uterine life, the other where (as here) the condition is evidently a definite pathological process, evidently primarily amniotic, where the adhesions are comparable to those resulting from burns.

FUNNEL CHEST.

Picqué and Colombaris[35] give most elaborate studies of a case of funnel chest, with a study of the cases recorded. Rarely rhachitic, usually congenital, in its beginning. The writers accept the theory of its being a *sternal* deformity due to softness of the sternum (possibly a delay in ossification) and to the influence of atmospheric pressure. In one of the cases here recorded the radiographic image showed a *marked* displacement of the heart to the left, a fact noted in the only autopsy on record and in other clinical cases. A good bibliography accompanies the article.

[33] Rev. d'orth., March 1, 1900, p. 77.
[35] Loc. cit., January, 1900, p. 61.
[34] Loc. cit., p. 67.
[35] Loc. cit., 1900, p. 157.

FAT EMBOLISM AFTER ORTHOPEDIC OPERATIONS.

Paye[36] reports 3 cases, in all of which in addition to embolism of the vessels there was a persistent thymus and large lymphatic glands. The author thinks this important; is inclined to consider the deaths, in spite of fat demonstrated in the vessels, to belong in the class of "thymus death," the deaths charged to "constitutio lymphatica." He adds a not very practical warning to avoid cases of this sort in regard to proposed operations.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF MOVEMENT.

Fraenkel[37] writes of the satisfactory results shown by his experience of what he terms compensatory movement treatment. The method requires considerable skill in the devising and use of the proper exercises varying with each case, according to the pathological conditions of each patient. The result of the treatment is said by the writer to be extremely satisfactory in causing improvement.

Ahrens writes of the value of apparatus as an aid in the treatment of tabetic arthropathies, and the unsatisfactory result obtained from operation, such as excision or incision.

CONTRACTION AND ANCHYLOSIS OF THE KNEE JOINT.

Blencke,[38] after a careful consideration of the subject, reports in favor of Helferich curved incision for the correction of the deformity in bony anchylosis of the knee. In the place of the wedge-shaped resection Ollier practised supracondyloid osteotomy.

TRAUMATIC SEPARATION OF THE EPIPHYSIS.

Wolf[39] describes the frequency of this affection, which since the introduction of the x-ray is more easily recognized than before. The treatment should consist in an accurate reposition of the fragments, the use of traction properly applied and the avoidance of too long a fixation of the joint.

Hutchinson and Barnard[40] advocate in traumatic separation of the lower femoral epiphysis that strong traction, progressive flexion and manual replacement of the epiphysis be combined simultaneously for reduction. Reduction accomplished, flexion is maintained with the heel on the buttock. Radiographs of cases before and after reduction seem to show the efficiency of the method. On the other hand, the statistics (of compound cases) treated by various older methods imply much worse results than obtain in this country today under present methods and may perhaps be misleading.

A New Medical Journal. — According to the *Medical News*, it is stated that subscriptions to the stock of a new medical journal, to be owned entirely by members of the profession and edited by Dr. Geo. M. Gould, have been unexpectedly great and now ensure the founding of the journal. It will be known as *American Medicine*, and it is expected that the first number will appear during March.

[36] Zeitschr. f. orth. Chir., 1899, Bd. vii, S. 338.
[37] Loc. cit., 1900, Bd. viii, H. 2.
[38] Loc. cit., S. 95.
[39] Deutsch. Zeitschr. f. Chir., 1900.
[40] Medical and Chirurgical Transactions of Royal Medical and Surgical Society of London, vol. lxxxii, 1899, p. 77.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting Wednesday, December 26, 1900, DR. HIGGINS in the chair.

DR. E. S. BOLAND read a paper entitled

THE WOOLLEN YARN TRUSS IN INFANTILE INGUINAL HERNIA.[1]

DR. WORCESTER: I have tried this truss and, although I never before understood how to apply it, I have had good results from its use. The rewinding of the skein to secure proper length and the tape fastenings evidently make it just right, easy of application and perfectly serviceable.

DR. COGGESHALL: I have never had but 1 case of the kind that I remember. My obstetrical practice is not very large, and I can only repeat what Dr. Worcester has said, that I tried this thing as I had seen it described and could not make it work. Obviously, as illustrated on that doll, I did not get it on right.

DR. CRAIG: I have used this truss on 2 cases, but I did not apply it as neatly as Dr. Boland has. In place of measuring it carefully as he suggests, which I can see is a much better way than that which I employed, I was very apt to measure off what I thought was right and carry it around the child, tying the end of the skein into the turn over the hip, which made it much more uncomfortable to the child than the tape would be. As to the results, 1 of the cases waited until I told them I was willing they should remove the truss and it was to all intents and purposes cured. The cases were seen while in general practice on the Cape and the second case was still wearing the truss when I left Provincetown. Aside from the difficulty of keeping it clean it is a most admirable means of retaining hernia. Unless the family surroundings are very good you will find it is apt to get soiled and become a nuisance in that way.

DR. HUBBARD: Last spring I was interested in the worsted truss treatment and followed some cases that came into the Infants' Hospital Out-Patient. I was able to get about 17 end results. Of these 6 were cures and 11 failures. Of course 17 cases are not enough to draw definite conclusions from, but there is at least one rather instructive and suggestive point. Of the 6 cases cured there was but 1 over two years old, or about 16%, and of the 11 failures 5, or 45%, were over two years old, so that the older the child the less likely the chance of cure.

As to the frequency of hernia in children, Kocher in an article reports a series of 70 new-born children in which the processus vaginalis was not closed in 34 cases. In another series of 100 children during the first three months of life it was found open in 37 cases, and in a third series of 188 children up to nine years old it was open in 41 cases.

DR. HIGGINS: Some years ago when I was doing work at the Children's Hospital, where there is a very large orthopedic out-patient clinic, including a good many cases of hernia, this worsted truss method was in very common use, especially on the young children. It was rarely applied to children over five years, and it was considered to be a very successful method. I know nothing about the statistics in regard to cure, but it was simply applied and kept on for a period of two years perhaps. If the mothers were careful and took good care of the children it usually resulted in cure; if not, and occasionally there was a case of large hernia where the truss could not control it, the children would be operated upon. Personally, when I was doing a little orthopedic practice at that time, I had 1 private case that came to me from New Hampshire. The patient wore a truss about a year and has been entirely well ever since.

DR. BOLAND: The truss does get wet and dirty, but the mother can have half a dozen and always have a clean, dry one. That is an objection, but it is an objection that holds good of any truss unless you have a covered steel spring with a hard-rubber pad and in young children under six months it is pretty hard to keep anything on. I think the truss has a limited range of usefulness among the younger children. My two failures were in children over two years old and in those where the activity brings more strain I think it will not do. In its own place I know it is of great help and it is a great comfort to the mothers. A skein of yarn costs twelve cents and will make four trusses.

DR. C. H. HARE reported a case of

CESAREAN SECTION FOR COMPLETE PLACENTA PREVIA.[2]

DR. FREDERICK COGGESHALL reported a case of

COMPLETE PLACENTA PREVIA.[3]

DR. WORCESTER: If I had heard from Dr. Hare that his case was successful I should not have come asking for the privilege of speaking upon the case, but I feel so keenly the danger of conservatism's triumph over the report of an unfavorable case that I want to say with all possible emphasis that I believe Dr. Hare did in this case exactly right. Of course he did what few surgeons now would do, but he did what I believe in a few years every surgeon will feel obliged to do. When the profession, after careful consideration, rises to a realization of the necessity of changing a time-honored treatment it means that the profession has appropriated truths recently discovered. There then follows a critical period when statistics are not trustworthy guides. Whether or no Cesarean section is the right treatment in cases of placenta previa is a question that does not yet depend upon statistics. And it may be that the operation for the next twenty times will be done only in such desperate cases that the mortality will be frightful. It may be that the men who undertake the operation will be as conscientious as was Dr. Hare that night when he thought of his duty to the mother and of his duty to the child rather than of the possible effect upon his statistics. In such cases the surgeon is justified in thinking of the effect upon the statistics only as regards the effect that statistics will have upon families who in the future shall be called to decide whether or no they will submit to radical surgical treatment. Never for any less worthy reason is the surgeon justified in declining to take the last chance, however radical be the step, even if the chance is one in a thousand.

In considering innovations we must never forget that

[1] See page 152 of the Journal.

[2] See page 151 of the Journal.

[3] See page 157 of the Journal.

what is theoretically right is right until disproved, and that proving comes only in fair trial. It is easy to lose patients in ways to which the profession and the community have become accustomed, and it is hard to lose patients in unaccustomed ways, after unaccustomed treatment, and cowardly men are apt to be overinfluenced by such considerations. It needs the quiet bravery of conviction, it needs the absolute disregard of personal reputation in order to bring into common use any new form of treatment. For instance, when the immediate surgical treatment of appendicitis first recognized to be theoretically right, it was much easier to let the patient die of general peritonitis, or inflammation of the bowels, or stoppage, or whatever the thing was called for ages, than it was to operate in proper time, and I remember in the discussions that we used to have years ago over the right or the wrong, just this question often arose, whether it would not be well to shirk an operation in a desperate case in order that statistics might not suffer, and I doubt not that many a life was sacrificed then by the timidity of surgeons who, thinking of their reputation or of the effect upon statistics, were unwilling to do what they knew was right. It is easy enough to stifle one's surgical conscience by blaming the ignorant family and friends, who of course are always ready to mistake the masked cowardice of the surgeon for a real interest in his patient. And it is also easy for self-satisfied conservatives to damn with faint praise or withering silence their braver comrades.

These remarks may seem irrelevant, but after hearing this admirable report of Dr. Hare's I feel we should recognize and applaud the surgeon's fidelity and skill. The case should not be reported as a case of the death of the infant, for under proper subsequent care the infant would doubtless have survived. At any rate the child would not have had so large a chance of life or lived so long had it been delivered in any other way. Cesarean section always gives the child the greatest possible chance. Instead of precarious passage through the parturient canal, the Cesarean child is gently lifted up into this world. And as for the mother, when we balance against the danger in even fairly normal labor to which the woman is subjected nervously and physically and the injuries she is liable to suffer, with their long evil sequence of ill health — when we balance against these dangers the slight dangers of a Cesarean section it is not a wild belief that womankind would take it easier. And certainly in labors that present unusual difficulties just as soon as the advantages of this operation are pointed out to the laity, the laity will jump ahead of the profession in demanding it. That change has already come about in the treatment of appendicitis. The families of not over-intelligence demand operative treatment for appendicitis, and will now discharge a timid physician who hesitates to give that treatment, and will themselves send for a surgeon, or will themselves apply for admission to a hospital, when only a few years ago, as I have just said, a deal of persuasion was necessary to obtain the family's consent. The laity often advances faster than the medical profession in the adoption of an important method of treatment, and the profession, it seems to me, often underrates the good sense of the laity, the good sense of the common people, the good sense of ignorant people; and many times an entirely unnecessary compromise is brought about between the physician's conscience and knowledge of what is right with what he wrongly supposes will be the natural objections on the part of the family to carrying out that absolutely right treatment. And the unnecessary compromise often results in disaster.

It seems to me a very auspicious thing at this last meeting in this old hall, and at this last meeting of the dying century, that we should have before us for consideration the report of this case, illustrating the application of advanced surgery in the treatment of a dilemma such as hitherto has frozen the courage out of obstetricians.

I congratulate Dr. Hare from the bottom of my heart. He did exactly the right thing, and he should have the applause of the whole profession. Had we known of this earlier how many mothers might have been saved!

DR. BOLAND: I have had very little experience with placenta previa — 1 case at term and 1 at six months. Both babies died and one of the women came near dying. One case I carried alone, and in the other I had another doctor help me. I am satisfied the chances of the baby are *nil* with a forcible delivery under these circumstances. It is usually premature if it comes, and if you wait till term and deliver rapidly its chances are not the best. In the future if I am unfortunate enough to get a case of that kind I shall call an operating gynecologist.

DR. COGGESHALL: I should like to say in regard to Dr. Hare's case that I should have done just what he did; the mother was so far gone she would probably have died anyhow, and the case proves nothing against the method. I must confess that the idea of Cesarean section did not strike me very favorably at first; this I fear was due to a Boston prejudice against anything that was new; but having thought it over, I feel that I should do that operation by preference wherever I had the facilities at hand, or time to obtain them. In my own case I did not entertain the idea because there was no time to send for proper assistance or instruments.

DR. DAVENPORT, of Providence: I have had very little experience with placenta previa. I have seen only 1 case and that in consultation. That was in the late stages and we turned and delivered. I have been very much interested in the treatment of these cases by Cesarean section and I am very sorry I did not hear Dr. Hare's paper.

DR. JOHN W. DEWIS read a paper on

PLACENTA PREVIA CENTRALIS: REPORT OF A CASE.[4]

DR. KEPLER: I hardly think I can add a single word to what has been said by Dr. Dewis. The doctor was kind enough to call me to help out, and it certainly was a frightful case. Everything had to be done with great rapidity. I felt at the time, and I feel now, that Dr. Dewis's work there was very rapid and the very best that could be done under the circumstances and that the patient owed her sudden taking off in nowise to anything that was done by the operator. As he says, the case shows evidences of embolism. I did not hear the other papers, but I would like to know if embolism is associated as a rule with placenta previa. We were taught in the medical school to look out for embolism, and just why we should have had embolism in this case with the

[4] See page 157 of the Journal.

uterus contracted down hard and occurring several hours afterwards is a question I would like to have a little light on. Evidently that seems the reasonable cause for the very sudden death.

DR. HIGGINS: I should think Dr. Dewis's case was probably one of those cases of sudden death in or after delivery which we unfortunately see or hear about once in a while. I have been present or have had my hand in 2 cases, 1 of which died with the suddenness of Dr. Dewis's case, and which was thought to be due to the dislodgment of a thrombus in one of the uterine sinuses, and the patient died with equal suddenness, and nothing would revive her. The second case was due to the same cause, and occurred about four days after delivery. I saw the case in consultation six or eight hours after she was delivered. It had been a case of adherent placenta, normal labor. The doctor had attempted to remove the placenta and it separated, and I was asked to see the case and to remove the rest of the placenta, which I did, using my fingers as a curette, as we have been taught to. That patient did perfectly well three or four days; she had no temperature, but a little abdominal distention and discomfort, and I was asked to see the case again in consultation with the same doctor because the husband was worried about her. Her bowels had not moved at the time, but she had absolutely no temperature and no peritonitis, but a little distention. While we waited the nurse gave her an enema which brought away a large movement, and I left in a half-hour, the patient apparently being in excellent condition. I stopped to see a patient on the way home, and when I got there I had already been telephoned for in great haste, saying that the patient had died. I saw the doctor and the husband afterwards, and learned that she simply turned over in bed and died very suddenly. The physician had left soon after I had, and there was no reason to account for it. Possibly the high enema caused the dislodgment of a thrombus, although it caused no pain at the time and the results were good.

In regard to Dr. Hare's case, I think we all are very much indebted to him for publishing the case. I myself know of several cases of fatal results after Cesarean section which have never been published, not occurring in my own practice, however. We have been taught to advise against the indiscriminate performance of Cesarean section, although we have recognized for some time it was a proper operation to do in certain cases of placenta previa, and it is very unfortunate that in starting out to do the operation we should meet with a death at once. Of course that will cool our ardor to a certain extent, and, as Dr. Worcester said, physicians are very easily criticised for losing patients under some new form of treatment or when they are attempting any innovation. I think the mortality from Cesarean section is rather larger than we are led to expect from the published reports of series of cases. Of course we have seen some very favorable statistics, but those cases were done not exactly on selected cases, but under favorable circumstances and on good cases, and the mortality is much larger under general circumstances and the less discriminating operator than the ordinary 2% to 5% which we are accustomed to hear about. I think packing for placenta previa, if efficiently done, is a very good placebo. It, however, makes considerable difference which way the packing is done. I do not think an efficient packing can be put in with a patient on her back. I think it must be in the Sims position with the perineum retracted, and I also think it makes considerable difference what material is used. Dry, sterilized gauze in my experience has been the most efficient packing. Wet gauze or a gauze containing glycerin acts very much like a wick, and will sometimes help to keep up the flow.

Since Dr. Donoghue reported his case two months ago I have seen 1 case of placenta previa. It was rather an interesting case, because we had just been discussing the subject, and I was at a loss to know whether to do a Cesarean section or not. I was asked to see the case about 6 o'clock one evening a month ago. She had been flowing a good deal all through the day. Pulse had gone to 120, and she was rather nervous and restless. I advised packing, and she was packed thoroughly and efficiently. That absolutely controlled the flow for the time being and I saw her again about five hours later. The packing was removed and it was only about half stained through. About half the gauze in the vagina was stained, and there was a moderate amount of dilatation, perhaps to the size of a ten-cent piece, so that packing had pretty well controlled the hemorrhage. However, she was repacked at the time, and about 4 o'clock in the morning that packing leaked very slightly and was changed again, and at 9 o'clock the packing was just beginning to leak the second time. The packing was entirely removed. There was dilatation of about 2 inches, and she was given a little ether and I delivered her with high forceps. It was a very easy case, and she made a good recovery and had practically no post-partum hemorrhage. The baby was premature, about seven months, and no fetal heart could be heard at any time, so that I think the baby was dead before we saw her.

In regard to the question of packing, I should like to say that I have never been able to see what the reason of it was, and should like to know whether it does any good, if the chairman can enlighten me. The difficulty, as I understand it, is with the hemorrhage you get when the placenta is detached. Now you simply postpone, it seems to me, the day of reckoning when you put in the packing; you may control the hemorrhage temporarily, but some time it must come, when the placenta is detached, and the placenta must be detached before the os can be dilated or the child can get out. I believe that the great mortality in this complication of labor is for the most part due to delay, and to failure to courageously face the difficulty. I did not mean to criticise the case the chairman reported, and the result justifies him, but most of the cases that have ended fatally of which I have been able to hear have been due to the doctors hesitating and sitting around waiting, like Micawber, "for something to turn up."

I have only treated 2 cases entirely on my own responsibility. In 1 case I was called early, the diagnosis was obvious at once and I emptied the uterus promptly. Both mother and child recovered without any difficulty, although the hemorrhage was for a short time appalling. The other case I have reported tonight. The 2 taken together seem to me to illustrate the different results of delay and prompt action. I feel that in another case wherever I dared to wait for proper instruments and assistance, I should do a Cesarean section.

Statistics as yet can have little value for us, and we must just judge of the two methods *a priori;* looked at from this point of view, Cesarean section presents the obvious advantage that the uterus is relieved of the child before the placenta is detached, and therefore the duration of serious hemorrhage is markedly diminished. My experience of Cesarean section for any purpose is very limited, but I doubt if the shock involved is any greater than that which accompanies operation by the old method.

Dr. F. G. Smith, of Somerville: This subject has interested me very much, as my first and only death in obstetric practice was due to placenta previa. This lady was eight months pregnant when I was called one noon and found that she had been flowing slightly. The mother of the lady was not at all alarmed; simply thought it was time I should be called and sent word. I made an examination, and found that the os had not dilated, and while I suspected placenta previa, I was not able to make a diagnosis. I had some gauze with me and packed the vagina, easily controlling the bleeding, and left the case, leaving word that I would call a little later. I had another call some distance away, and when I returned, about 3 o'clock in the afternoon, there was a message sent for me to call there immediately. When I reached the patient I found her *in extremis.* She had evidently lost a great amount of blood. Her pulse was hardly perceptible, her pupils were dilated, and she was almost wholly unconscious. I scrubbed up the best I could under the circumstances, not taking a great deal of time. Another physician had already been called and rendered valuable assistance. We gave a little ether. It was not necessary to give very much because of her condition. I removed the gauze packing, found the os had dilated, in which was a bulging placenta. I went in on the side, gradually separating it from the uterus, got hold of one of the feet and performed version. I think I was about three minutes in removing the contents of the uterus. She flowed dreadfully while I was doing this, but I got good contractions and gave normal salt solution by the rectum. I stayed there till about 8 o'clock in the evening. She seemed to be doing quite nicely, when suddenly the pulse stopped and she was dead. Whether this was a case of embolus, as Dr. Lewis suggests happened in his case, I do not know, but it occurred to me it might be that. She seemed to be doing quite well, but she died very suddenly.

Dr. Higgins: In my statement I did not intend to suggest packing as a means of dilatation or delivery, only simply as a temporary expedient. I think the fatal result in a great majority of cases of placenta previa that are delivered by the natural passage is due to the additional shock of immediate delivery, and the additional hemorrhage which is going on during delivery, together with the post-partum hemorrhage. The hemorrhage usually would not be serious during delivery were it not for the previous hemorrhage. I think this packing is a good temporary expedient while you are getting ready to do Cesarean section or giving the woman subcutaneous salt infusions to get her in better shape for the time being. I think you can pack the vagina so tightly as to control all hemorrhage a short time. Of course that stains through and leaks after a while. In this case I saw recently I neglected to say the pulse in the first five hours came down from 120 to about 80 after the packing, and she was in first-class shape to do anything at that time. This was not a case of complete placenta previa, although the hemorrhage led us to think at first it was. I have seen 6 cases altogether, most of them at the Lying-in Hospital. The second case I saw was one in which there was practically complete dilatation with complete placenta previa, and the hemorrhage had entirely stopped. The patient was under the charge of an externe in South Boston, and when I arrived there was no hemorrhage and dilatation was complete, and delivery was a very easy and simple thing. That is rather unusual, but still you might see it occasionally. The child in the case just spoken of was asphyxiated, as one would naturally expect. I think the fetal mortality is so large mainly because they are premature. I think it would be very interesting to compare the fetal mortality after placenta previa with the fetal mortality of ordinary premature infants, which is, as we all know, very large in itself.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-Fifth Annual Meeting, held in Albany, January 29, 30 and 31, 1901.

FIRST DAY.

Dr. A. M. Phelps, the president, delivered the

INAUGURAL ADDRESS.

He recommended that the way to securing membership in the society be made easier by having each county hereafter elect two delegates annually, each to serve for one year. He also thought it would be well to hold a semi-annual and exclusively scientific and social meeting in some other city than Albany.

REPORT OF THE COMMITTEE ON HYGIENE.

Dr. Henry R. Hopkins, of Buffalo, in presenting the report of this committee, spoke of the preliminary steps that had been taken towards securing State control of pulmonary tuberculosis, and reforms in tenement houses. The committee thought it desirable that gonorrhea and syphilis should be included in the list of diseases to be reported to the health authorities.

REPORT OF COMMITTEE ON LEGISLATION.

Dr. Frank Van Fleet, of New York, presented this report. It showed that out of the 268 medical bills presented to the last legislature, no bill had been allowed to become a law which was prejudicial to the society or to the medical profession.

Dr. Charles A. L. Reed, of Cincinnati, O., the president of the American Medical Association, being introduced to the society at this time, made a brief speech, the burden of which was that the trend of the present was towards unity and peace in the medical profession. He added significantly: "I am sure when you gather in our national council in St. Paul we shall be nearer an understanding on the unfortunate questions which have divided us for nearly two decades than we have been these many years."

THE PRIZE ESSAY.

The successful essayist this year was Dr. Lucien Howe, of Buffalo, the essay being entitled "On the

Management of the Interocular Base Line and the Size of the Meter Angle."

REPORT OF COMMITTEE ON STATE BOARD OF MEDICAL EXAMINERS.

DR. M. J. LEWI stated in this report that out of the 792 candidates for license, 143, or 18.05%, had been rejected. The regents had granted licenses to 107 physicians during the year.

RECENT PROGRESS IN THE TREATMENT OF ACUTE LOBAR PNEUMONIA.

DR. JAMES K. CROOK, of New York, read this paper. He said that no very striking innovations in our methods of treatment had been made recently, yet it was gratifying to note that while there were many minor differences of opinion, there was a commendable unanimity as to the underlying principles. In the present state of our knowledge not a single dose of medicine should be given simply because pneumonia was present; the indications should be watched for and met. The old-time poultice was being relegated to a well-deserved oblivion, and the use of ice bags and sponge baths was happily becoming almost universal. No more safe procedure than this would be found in the whole therapeutics of pneumonia. He favored the use of opiates, not as a routine measure, but carefully and discriminatingly to meet such definite indications as obstinate insomnia, intense nervous excitement or delirium. The same was true of alcohol. While it was usually indicated in chronic alcoholics and in old people, it was rarely required in others if the pulse rate kept below 110. Digitalis was losing favor, and caffeine was becoming more popular, while strychnine was generally admitted to be the most useful heart tonic in this disease. It should be noted that the specific plan of medication advocated by those who believe that pneumonia should be treated by combating the activity of the pneumococcus had not made much progress. There had been a surprising apathy among the French and Germans regarding the use of antipneumotoxin. Some progress had been made in our own country, but the chief obstacle was our inability to prepare an antitoxin of uniform and stable quality.

DR. ELISHA H. BRIDGES, of Ogdensburg, said that he could not accept the theory of the microbic origin of pneumonia. The one great essential in the treatment was securing to the patient an abundant supply of fresh air. Strychnine, morphine and alcohol were, in his opinion, the most useful remedies.

CONGENITAL DISLOCATION OF THE SHOULDER.

DR. DANIEL W. MARSTON, of New York, presented a communication on this subject. The majority of cases were dependent, he said, upon traumatism at birth, a fact that was emphasized in the frequent history of difficult labor. Our aim in treatment should be the reduction of the deformity and obtaining a useful joint. For patients under three years of age manual reduction was worthy of trial, but should this fail, operation should be resorted to.

THE RELATION OF APPENDICITIS TO DISEASES OF THE UTERINE APPENDAGES.

DR. A. L. BEAHAN, of Canandaigua, read a paper in which this relation was emphasized by the report of several cases. The association with menstruation of fever, tenderness over the appendix, constipation, flatulence, nervous irritability and exhaustion pointed very strongly to an appendicitis.

SMALL HOSPITALS AND THEIR ADMINISTRATION.

DR. LOUIS NOTT LANEHART, of Hempstead, gave his personal views on this topic, of much interest to many practitioners in the smaller towns.

THE NECESSITY OF GREATER CONSERVATISM IN THE USE OF VASODILATORS IN CERTAIN CASES OF CARDIOVASCULAR DISEASE.

DR. LOUIS FAUGÈRES BISHOP, of New York, was the author of this paper. He deplored the frequent routine use of the nitrites in doses not at all suited to the individual case, and insisted that in the successful use of these drugs each case must be a physiological study. If used in excess they cause dilatation of the heart and paralysis of inhibition.

WHAT IS RODENT ULCER?

DR. J. A. FORDYCE, of New York, with the aid of many fine photographs, pointed out clearly both the histological and the clinical features of rodent ulcer. He said that mistakes in diagnosis were not infrequent, and occurred for the most part in the late stages of this type of cutaneous cancer at a time when it was apt to lose its pearly-gray and thickened margin and appear only as an ulcer. While in the majority of cases it first appeared about the age of forty, it was by no means uncommon to see it much earlier. He had himself seen it as early as the twentieth year, and Hutchinson had seen it at the age of fourteen. Its first stage attracted little attention, and it was characterized by an excessively slow course and by very little new growth. The ulceration kept pace with or exceeded the newly formed tissue. Rodent ulcer when once well established exhibited a very strong tendency to recur after removal, and the lymph nodes did not always escape.

RECTOCOLONIC ENTEROLITHS AND CONCRETIONS.

DR. SAMUEL G. GANT, of New York, presented in this paper the results of a study of 53 cases. In 34 of these the stones had been situated in the rectum. They occurred more frequently in women and after the age of forty. Hair balls were also found, and oat stones in persons who had been in the habit of eating large quantities of oatmeal.

ESOPHORIA, OR LATENT SQUINT.

DR. FRANCIS VALK, of New York, contributed this paper. His views on the etiology of this condition were based on the muscular theory, associated with the fusion force of the eye. He believed that the straight muscles showed a certain power under stimulation of the fusion force, and that this power bore a certain relation to the action of the other muscles. The prism test he considered to be the only one that could be relied upon to indicate the true balance of power in these muscles, or the want of power, as an imbalance, as well as the probable muscles at fault. The histories of 16 cases were given briefly as examples of those showing latent convergent squint by the prism test. The operation employed consisted in a shortening of the external rectus by a "tuck" with a catgut suture, the latter being inserted while the muscle is held by the twin strabismus hooks de-

vised by himself. The reaction after the operation was very slight.

DEMONSTRATION OF THE OPHTHALMOPHACOMETER.

DR. LUCIEN HOWE, of Buffalo, demonstrated the action of this instrument, and presented simple formulæ relating to its use. The object of the instrument was to demonstrate the images formed by reflections from the surfaces of the cornea and crystalline lens.

CAN INTERSTITIAL KERATITIS BE PREVENTED IN THE OFFSPRING OF SYPHILITIC PARENTS?

DR. PETER A. CALLAN, of New York, replied to this query by saying that physicians could delay, but could not wholly prevent, the outbreak of interstitial keratitis in a certain number of cases. According to experience, the offspring of syphilitics show the inherited taint in only a small percentage of cases over five years of age.

RELATIONS BETWEEN CERTAIN DISEASES OF THE SKIN AND THE MENSTRUAL FUNCTION.

DR. L. DUNCAN BULKLEY was the author of this paper. He said that he had records of 42 cases in which this relation had been very evident. Acne was the most frequent cutaneous manifestation in this class. In a series of 510 cases of acne nearly one-third had shown a relation between the acne and menstruation. In 79 the acne had been aggravated by the approach of menstruation, and in 14 it had been worse after the menstrual epoch. There was a particular relation between acne of the chin and the menstrual function.

DR. A. JACOBI said that he had seen vicarious menstruation from varicose ulcers as well as from the ear and nose.

HYSTERICAL ANESTHESIA AND ANALGESIA.

DR. B. C. LOVELAND, of Syracuse, reported this case, which was one of hysteria major.

OPERATIONS FOR DEFORMITIES FOLLOWING POTT'S FRACTURE.

DR. W. O. PLIMPTON, of New York, reported 6 cases in which he had obtained a uniformly good result from division of the bone at the point of original fracture.

DEEP BREATHING AS A CURATIVE AND PREVENTIVE MEASURE.

DR. JOHN H. PRYOR, of Buffalo, pointed out in this paper the many therapeutic advantages of deep breathing, or, in other words, of thorough oxygenation. The effect of lung gymnastics on old exudates naturally received a large share of attention.

BELLADONNA VERSUS SCOPOLIA.

DR. REYNOLD W. WILCOX, of New York, pointed out the nearly identical composition of these two drugs.

INDICATIONS AND LIMITATIONS OF THE VAGINAL ROUTE OF ATTACK IN PELVIC DISEASES IN WOMEN.

DR. J. RIDDLE GOFFE, of New York, gave in this paper the latest accepted views of operating surgeons on this very important topic.

DISINFECTION WITHIN AND WITHOUT THE BODY IN DIPHTHERIA.[1]

DR. M. A. VEEDER, of Lyons, called attention to the advantages of using local germicides, and the danger of disseminating the disease during examinations or attempts at local treatment unless certain precautions were observed.

AFTER-THOUGHTS ON DIPHTHERIA.

DR. I. N. LOVE, of New York, spoke of the need for careful discrimination in drawing deductions concerning the results from the antitoxin treatment of diphtheria because of the progress that had been made in recent years in other methods of treatment. Much confusion had arisen from basing diagnosis and classification solely on the results of bacteriological examination.

THE TREATMENT OF PERSISTENT SUPRAPUBIC VESICAL FISTULA BY MEANS OF BOTTINI'S OPERATION.

DR. WILLY MEYER, of New York, reported cases illustrating this method of treatment.

THE PORRO-CESAREAN OPERATION.

DR. J. H. GLASS, of Utica, stated that the indications for this operation were: (1) Sepsis after protracted labor; (2) cancer; (3) large myomata; (4) atresia; (5) ovarian tumors; (6) hemorrhage, and (7) dystocia.

FATTY DEGENERATION OF THE HEART.

DR. THOMAS E. SATTERTHWAITE, of New York, read this paper, the object of which was to connect the three degrees of fatty degeneration, described by Bollinger in 1898, with three clinical stages. He was of the opinion that fatty degeneration of the heart is a common affection, attendant on and consecutive to various disorders. It was caused primarily by fevers, toxemias, disorders of nutrition and mechanical injuries. In the early stage the prognosis was best for complete recovery. Rest, tonics and nutrients were indicated in this stage. One should expect in the second or intermediate stage to so reduce the bulk of the fatty deposit that the muscular substance of the heart would recover enough of its normal tonicity to functionate physiologically. It was in this stage that carbonated baths and resistant exercises achieved their best results. In the final stage, when there was secondary implication of the viscera, the prognosis was necessarily unfavorable, though in rare instances the skilful use of modern therapeutic methods might result in recovery after attacks of ascites and cerebral effusion.

RECENT EXPERIENCES WITH ERYTHROMELALGIA.

DR. HENRY L. ELSNER, of Syracuse, in this paper spoke of combinations of erythromelalgia with Raynaud's disease and with syphilitic endarteritis obliterans, and stated his opinion that the disease depended more on arterial disease than on disorder of the nervous system.

RESULTS FOLLOWING THE CURE OF CHRONIC DEFECTS IN THE VESICAL FUNCTION.

DR. EUGENE FULLER, of New York, presented this paper. The object was to show that by appro-

[1] See page 153 of the Journal.

priate surgical measures it was possible in certain cases, in which the power of the bladder to empty itself had become impaired, to materially improve the condition. The most important of the factors leading to such crippling of the bladder were stricture, chronic contraction of the prostatic fibres around the vesical neck, senile prostatic hypertrophy, calculi and tumors. The direct causes for these conditions were vesical tenesmus, stagnation of urine and urinary infection. Long continued vesical tenesmus led to firm and unyielding bladder walls; stagnation caused stretching of those walls. The ureters and the pelves of the kidneys also showed the effect of chronic vesical stagnation. Thus, the ureteral orifices became very patulous, and the natural ureteral resistance to a vesical reflux being removed, the way was open for the development of a hydronephrosis. When the latter became extensive, the kidney soon became involved in the pathological process. Vesical infection added the inflammatory element to these processes, and the extension of this inflammation into the pelvis of the kidney was especially dangerous. It was most important that not only the disturbing factor be removed, but that rest of the bladder should be ensured by artificial drainage until the resulting lesions of the urinary tract had had time for repair.

A SIMPLE AND ACCURATE METHOD OF SUBSTITUTE INFANT FEEDING.

DR. HENRY DWIGHT CHAPIN, of New York, was the author of this paper. He said that in preparing the substitute food there were three important factors, namely, (1) Selection of good cow's milk; (2) suitable modification of the milk, and (3) the choice of a diluent. The same milkman's supply of milk varied little from day to day in the richness of the cream. Dilution of cow's milk with wheat or barley gruel, in which the starch had been digested, broke up the curds and so greatly aided digestion. This gruel could be prepared by boiling a heaping tablespoonful of flour with a pint of water, cooling and adding an aqueous solution of diastase. From 9 to 16 ounces of the top milk should be dipped off into a pitcher. Food for an infant should be made up of from one-eighth to one-third of 9 ounces of top milk, or of one-eighth to one-third of 16 ounces of top milk, the remainder consisting of digested gruel. One part of sugar should be added to 20 or 25 parts of food. Rich milk would require to be diluted more than poor milk. Each additional ounce removed from the milk bottles reduces the fat in the top milk from $\frac{1}{2}\%$ to 1%, thus cutting down the fat in the food $\frac{1}{8}\%$ to $\frac{1}{4}\%$, depending on the dilution.

ECTOPIC PREGNANCY; PRIMARY RUPTURE THE OPPORTUNE TIME FOR MAKING DIAGNOSIS.

DR. GEORGE MCNAUGHTON, of Brooklyn, considered in this paper the main points in diagnosis.

LEPROSY IN THE HAWAIIAN ISLANDS.

DR. CHARLES E. DAVIS, of Albany, gave an interesting account of leprosy as found in these islands.

AN X-RAY STUDY OF THE CAUSES OF DISABILITY FOLLOWING FRACTURES INVOLVING THE ELBOW JOINT.

DR. SAMUEL LLOYD, of New York, presented this communication. He said that so far as his experience had gone anchylosis at the elbow was true or bony. The function of the joint might be interfered with by the presence of callus, displaced bony fragments or by the head of the radius. If, under anesthesia, it were impossible to secure a satisfactory reduction of the displaced bones, the joint should be at once operated upon, just as one would do in a case of irreducible compound fracture. He favored putting up the arm in a flexed position, as that gave the most useful member in the event of anchylosis. Passive motion should be begun after three weeks.

DR. R. H. M. DAWBARN said that those who had not an x-ray apparatus at hand would derive much aid from the simple expedient of anesthetizing the patient and applying an Esmarch bandage. This, by markedly reducing the swelling, enabled the surgeon in most instances to arrive at a correct conclusion regarding the nature and extent of the injury.

(To be continued.)

Recent Literature.

Textbook of Histology, Including Microscopic Technique. By DR. PHILIP STÖHR, Professor of Anatomy at the University of Würzburg. Translated by DR. EMMA L. BILSTEIN. Edited by DR. ALFRED SCHAPER, Professor of Anatomy, University of Breslau. Pp. 432, with 301 text illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

Few textbooks on histology and microscopic anatomy have won such wide recognition in so short a time, as evidenced by the fact that it has passed through nine editions since 1887, and has been translated into Italian, French, Russian and English. The present volume represents the third American edition. When compared with the preceding American edition many points of superiority are noticeable. The portions dealing with technique have been carefully revised, a more precise terminology adopted and much new matter added. The more conservative may hesitate, however, to commend the phonetic spelling which the editor introduces, namely, "sulfuric," "sulfite," "pipet," "anilin," etc.

In the part on histology but few changes are apparent. The part on microscopic anatomy has not only been thoroughly revised but much additional matter has been incorporated, especially on the digestive organs. The author classifies these organs under I, Headgut, and II, Rumpgut; under the second division are the subdivisions: Foregut, Midgut and Hindgut. This classification is adopted without a word of explanation as to the meaning of these terms, and is therefore unintelligible to the student; not only is this true, but the classification is, in part, erroneous. Aside from this one objectionable feature there is nothing to detract from the excellence of this part of the book.

A distinctive feature of the American edition is a chapter by the editor on the uterus and placenta which is of great value to the medical student, and one which is not to be found in other textbooks. This and many other less important additions serve to bring together, in textbook form, the results of the latest researches in histology and microscopic anatomy.

One of the chief merits of the work, as stated in the editor's preface, is the brevity, precision and clearness of the descriptive text. The illustrations are for the most part original and possess a high degree of accuracy. Some, however, are copied from inaccurate originals. An example of such is Figure 287, in which the relation of the nerve endings to the auditory cells is incorrectly represented.

The translation is in general clear and concise; occasionally one finds a rendering which if given more freely would certainly be clearer. An instance in mind is the translation of the word *cellulifugalwärts* as "cellulifugalward."

The presswork is of the very highest grade. The illustrations are especially praiseworthy, while the typographical errors are few and of such a character that they are insignificant.

Orthopedic Surgery. By CHARLES BELL KEETLEY, F.R.C.S., Surgeon to the West London Hospital; Member of the British Orthopedic Society. London: Smith, Elder & Co. New York: C. P. Putnam & Sons.

This is a book of much interest to the orthopedic surgeon. The chapter on Coxa Vara is of value as the contribution of one of the early workers in the study of this lately found deformity. The book confines itself to that portion of orthopedic surgery exclusive of tubercular affections of the joint which in many places as deforming diseases ordinarily fall to the care of the orthopedic surgeon. The book is, therefore, of greater value to English than to American students, but it is of interest to all readers interested in the subject, as one of the best expositions of current English orthopedic surgery.

The chapter on Splastic Paraplegia advises myotomy and tenotomy and is, therefore, properly in advance of many neurological writers, but does not refer to tendon transference, which is now recommended by German surgeons. Trephining is mentioned as of possible use, but no cases are reported and the method remains as yet a suggestion.

The book is that of a student and of a man of ideas and experience, and is, therefore, a decided contribution to the art. The work is well but hardly handsomely illustrated, as is unfortunately the case with many English and American works on the subject.

In spelling the word "orthopaedic" the writer adopts English custom, although in the introductory lines of his work the word is correctly described as coming from the French *orthopédie*, derived from the Greek words *orthos* and *paidion*. Writers are justified in following sanctioned usage, but it is clear that reform is desirable in our cumbersome English spelling, and where authorities allow us, can we not be phonetic and also be right and simple?

The Use of the Röntgen Ray by the Medical Department of the United States Army in the War with Spain (1898). Prepared under the direction of SURGEON-GENERAL GEORGE M. STERNBERG, U. S. Army. By W. C. BORDEN, Captain and Assistant Surgeon, U. S. Army. Washington: Government Printing Office. 1900.

The title explains the general scope of this attractive volume of 98 pages with 38 full-page plates. A careful selection of cases has been made by the compiler; clinical histories are given in considerable detail, and only those have been chosen which illustrate important points in relation to the use of the x-ray. The chief value of the work lies in the x-ray photographs, which were evidently taken with much care and skill, and have been most admirably reproduced by the heliotype process. They have in no case been retouched to add to their clearness, a method to which recourse has too often been made of late. The work in this book also demonstrates that x-ray reproductions to be of value must be reproduced by the best processes on special paper. The typography is excellent, and the x-ray plates are among the very best we have had an opportunity to see.

A Textbook of Practical Medicine. By JAMES W. ANDERS, M.D., Ph.D., LL.D., Professor of Practice of Medicine, Medico-Chirurgical College, Philadelphia. Fourth edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1900.

A yearly edition seems to be about the right standard unto which works on the practice of medicine should attain. This is the fourth edition of Dr. Anders's textbook. Advantage has been taken of the new edition for revision and rearrangement. He must be indeed a difficult practitioner or a difficult student of medicine who cannot find among all the works on theory or practice of medicine which have been placed on the market in recent years one or more which meet his requirements. It is evident that there are those who find their wants fulfilled by this textbook. It has many of the merits of its class and is not absolutely free from an occasional defect.

Saunders' Question Compends, No. 17. Essentials of Diagnosis, arranged in the form of Questions and Answers, prepared especially for Students of Medicine. By SOLOMON SOLIS-COHEN, M.D., and AUGUSTUS A. ESHNER, M.D. Illustrated. Second edition, revised and enlarged. Philadelphia: W. B. Saunders & Co. 1900.

This is the second edition of No. 17 of Saunders' Question Compends. There is evidently a large demand for such question compends. As we have more than once stated, we are not great advocates or admirers of these compressed self helps for "busy students and practitioners." This one is dedicated to the late Dr. Da Costa and is prepared by two of his former pupils, now professors in the Philadelphia Polyclinic. If one wants a compressed self-help question compend on the essentials of diagnosis this is a good one.

A Textbook of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. For the Use of Students and Practitioners of Medicine. By ARTHUR R. CUSHNY, M.A., M.D. (Aberd.), Professor of Materia Medica and Therapeutics in the University of Michigan Medical Department, Ann Arbor. New (second) edition. In one octavo volume of 732 pages, with 47 engravings. Philadelphia and New York: Lea Brothers & Co. 1901.

There is not much to be said about the second edition of this work. It is but little more than a year since we welcomed the first edition, and sufficient time has not elapsed to require many changes. The book continues to represent modern medicine and today is the standard work in America on pharmacology and therapeutics.

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COMPULSORY DISINFECTION IN TYPHOID FEVER.

THE discovery of the cause of an infectious disease should have as its principal result the prevention or limitation of that disease. This is the greatest benefit which such knowledge can bestow. In general our boards of health have been quick to take advantage of these advances in medical science. In typhoid fever, however, although our increased knowledge of the cause of the disease has led to much, it has led to less in the way of prophylaxis than should be the case.

Bacteriology has shown that the infectious material may be destroyed much more easily in some diseases than in others. For example, in diseases of which diphtheria is a type the infectious material is so disseminated from the patient that it is impossible to prevent persons and objects in close proximity from becoming infected. In such a disease isolation of the patient must be carried out, but if this is done thoroughly, there is little danger of the infection being carried to persons at a distance.

Typhoid fever is an illustration of a disease of a very different type. Here practically all the infectious material is in the urine and feces, which are received in a receptacle by the attendant. In that receptacle all the bacilli may be destroyed and almost all danger of infecting others easily removed by the addition of some suitable disinfectant. If this is not done, articles of food or the water supply may be infected, and the disease thus carried to persons at a distance. Nearly every case of typhoid fever that occurs has been infected from the excreta of a typhoid patient. To prevent typhoid, therefore, we have only to disinfect the excreta of every case.

These simple facts are understood by all practitioners. We mention them here only to emphasize their simplicity as well as their importance. It is hard to see how the control of any disease could be more completely in the hands of man. We should, therefore, expect that our boards of health would endeavor to insist that disinfection should be carried out in every case. In reality, however, we find that practically not much is done by health officials in this direction. Circulars have been issued, notably one by the Boston Board of Health, giving valuable instructions and inculcating good advice. A few physicians and most of the hospitals insist on disinfection, but this is not enough to have any appreciable effect in stamping out the disease. To this end, not merely must the gospel of disinfection be preached, but some means must be sought and, if possible, be found for enforcing its precepts.

As a result of our indifference to these precautions, typhoid, though most distinctly a preventable disease and though less prevalent than formerly, is constantly present in the community. It attacks chiefly those who are in the prime of life, and most needed for the support of the family. It takes away from the community and from public life many of those who can least be spared. Even in modern warfare it destroys more than the enemy's bullets.

The constant presence of typhoid in our midst is probably the cause of our comparative indifference to the disease. Cholera is spread in a similar way, and is probably not a more serious disease; yet the very name is sufficient to make the public shudder, and boards of health do their utmost to prevent it spreading from the cases that have occurred. What are the precautions which are taken in cholera? The same which should be taken in typhoid, a disease of similar origin and spread in a similar way, namely, a thorough disinfection of the excreta from the patient and of everything which may be contaminated by them. As a result of these measures, cholera is stamped out of every civilized community, and only occasionally gets a foothold through the neglect of proper precautions.

At the time of an epidemic of typhoid our health officials frequently display very great thoroughness and energy in tracing out the source of infection. The reports of these investigations, and of the following up of each clew, afford as interesting reading as a detective story. They fill us with admiration for the skill of the investigators, whose efforts, unfortunately, are seldom of more than a restricted benefit. On account of the long incubation period of typhoid the cutting off of the discovered source is merely locking one door of the barn after the horse is stolen. Direct this same energy toward securing disinfection in all cases and the disease will soon become extremely rare.

The remedy for this condition is to be found in legislation. The question of disinfection should no more be left to local boards of health in typhoid than it is in diphtheria and scarlet fever. There should be no local option in such matters. It is not sufficient that disinfection should be done in the city or town where we live. It is much more important that it should be done in the country places from which come our water and milk. Our Massachusetts law might be amended so as to require disinfection of the excreta in every case of typhoid

within the borders of the Commonwealth. The public statutes now require disinfection after diphtheria, smallpox, scarlet fever, or any other infectious or contagious disease dangerous to the public health. In compliance with this law our local boards of health carry out expensive formaldehyde disinfection of the infected rooms, although probably in those diseases the infection takes place in various ways. How much more important that disinfection should be done in typhoid, where every chance of infecting others may be removed by the destruction of all the bacilli!

The public statutes might require the local boards of health to send their agents or inspectors to every case of typhoid that is reported, to convince themselves that the dejecta are being properly disinfected. When necessary, disinfectants might be furnished free. If it is found that the directions of the board are not being complied with, they might have authority to remove the patient to a hospital where disinfection will be done.

The initiative for any steps toward securing disinfection in typhoid fever must come from the medical profession. The medical societies ought to take up this question. It should be agitated and brought before the legislature. Let us hope that very little of the twentieth century will have passed before measures will have been taken to stamp out the disease. May it no longer remain a reproach to our profession and to the intelligence of the age.

A PSYCHOPHYSICAL LABORATORY IN THE DEPARTMENT OF THE INTERIOR, WASHINGTON.

THE question of the establishment of a psychophysical laboratory at Washington has been under discussion for a considerable time. A Senate amendment to the Sundry Civil Bill for such a laboratory has recently been introduced, which provides $4,500 salary for the director and $16,500 for the expenses incidental to the collection of data and for necessary printing. Regarding the aims of the laboratory, it is stated that it is not to be in competition with other psychophysical laboratories in our country. Its purpose is to gather sociological, pathological or abnormal data, as found especially in children and in criminal, pauper and defective classes, and in hospitals. Besides these data it is desired to gather more special data with laboratory instruments of precision and to make such experiments or measurements as are generally considered of value by psychophysicists and anthropologists. While the field is necessarily a very large one, the purpose is to study in those parts of it which seem at the time to be productive of the most practical results.

It is to be hoped that such a laboratory may be established, and if established may confine itself closely to the line of work outlined above. That such work is needed there can be no question, and that it is eminently fitting that it should be supported and encouraged by the central government is equally evident. It is peculiarly true of investigations of the proposed character which this laboratory is to pursue that a very large number of data must be collected before conclusions of significance may be drawn. In the hands of a competent director it would no doubt be possible to bring about this result in a more complete way than has heretofore been done, and thereby provide knowledge of which we are certainly much in need. The loose, popular and often promiscuous talk of the last few years regarding degeneracy needs reconstruction and adjustment to the facts as soberly considered after years of patient investigation. If the suggested laboratory could, even in small measure, bring this about, its existence would be amply justified. In general, we are convinced that the intelligent collection of facts such as it is the design of this laboratory to accomplish in various lines of normal and abnormal anthropology is a work for which the time is ripe.

A PROPOSED MEMORIAL TO THE LATE DR. DA COSTA.

AN appeal is in circulation for funds for the establishment of a laboratory of clinical medicine in connection with the Hospital of the Jefferson Medical School in Philadelphia as a memorial to the late Dr. J. M. Da Costa. This appeal is the result of a resolution of the Board of Trustees of the Jefferson Medical School and Hospital to the following effect:

That for the purpose of commemorating the eminence of the late Professor J. M. Da Costa as a member of the faculty of this college, his notable career as a physician, and his distinguished services to humanity and to the advancement of medical science, a laboratory of clinical medicine, to be known as "The J. M. Da Costa Memorial Laboratory of Clinical Medicine," shall be established in connection with the Jefferson Hospital, and that the medical profession, the friends of Dr. Da Costa, and any others who may desire to contribute to the fund needed for the establishment of such laboratory, shall be given the opportunity of subscribing thereto.

It is proposed by those interested in this project to raise $50,000 for building such a laboratory, and $50,000 additional for its perpetual endowment. There is certainly no more worthy or fruitful purpose to which money could be devoted than this, if properly administered, and no representative of the medical profession in recent years more deserving of such a memorial than the late Dr. Da Costa. He was himself gentle, kindly, helpful, wise and learned, and a dispenser of all these eminently precious characteristics to others both in and outside of the profession of medicine through many years. He was known and appreciated both through his books and his personal teaching by great numbers of students and practitioners of medicine in many places. His skill, his judgment, his tact have profited many sick people whose diseases have thereby been healed, or whose burdens

have been rendered less hard to bear, and who cannot fail to hold the man and the physician in grateful remembrance.

This appeal reminds us that "he was for over thirty years a teacher of medicine, gave lustre to Philadelphia as a medical centre, and was known the world over as one of our ablest writers and most successful practitioners. It is fitting that a career so distinguished should be made memorable for all time by a laboratory in his chosen department. . . . For a generation Dr. Da Costa was the warm friend, the trusted adviser and in multitudes of cases the good angel at the bedside of the sick, often recalling to life and health our best-known citizens, or soothing their last hours. Many persons owe him a debt of gratitude which may well find expression in carrying on his work for the good of all future generations of poor and rich alike."

Those who make this appeal may justly remind the public that in Europe the sort of work which they propose to further is done in government laboratories for which large sums of money are appropriated. In our country "scientific medical progress is dependent upon the generous support of our enlightened and liberal fellow citizens."

MEDICAL NOTES.

"PLACE AUX DAMES." — The wrecking propensities of certain misguided women in the West have led in Chicago to a systematized attack on several drug stores. A daily contemporary remarks upon the event as follows: "According to a Chicago dispatch, half a dozen female followers of Dowie, the faith-cure healer, with the war cry that drugs are the agent of the devil, recently wrecked a number of drug stores on the west side of that city. Armed with pitchforks, umbrellas and canes, they succeeded in destroying property wherever they went. "Place aux dames" is a gallant motto, and a good one; but the place for these dames, apparently, is in the lunatic hospital. When lovely woman stoops to such folly as this, she will be likely to find that there comes a time when man's gallantry ceases to be a virtue."

PLAGUE IN INDIA. — According to the Bombay correspondent of the London *Daily Express*, plague prevails in every part of India, except the central provinces. There is said to be a weekly mortality of 2,500 in Bengal. In Bombay the deaths reach 94% of the cases. Ther is a lack of proper medical attendance.

A CASE OF SMALLPOX ON A CANADIAN PACIFIC TRAIN. — A man suffering from smallpox was recently found on a train of the Canadian Pacific Railroad. The car, which contained six other passengers, was detached from the train and placed in quarantine.

SMALLPOX AND PLAGUE AT MANILA. — Several cases of plague and smallpox have recently been discovered in Manila. The appearance of these diseases causes no alarm to the Health Board, as it is to a certain extent expected during the hot season.

SMALLPOX IN GLASGOW AND NORWICH. — There is a considerable epidemic of smallpox in Glasgow. On February 7th 33 new cases were reported. The disease has also appeared among the Thirteenth Hussars, stationed at Norwich.

PLAGUE IN CAPE TOWN. — It is reported that on February 8th 2 cases of bubonic plague had been officially diagnosticated at Cape Town.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, February 13, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 111, scarlatina 42, measles 29, typhoid fever 1.

INSPECTION OF FOOD AND DRUGS. — The following, from the *Weekly Bulletin of the State Board of Health*, presents the results of the examinations of food and drugs by the State Board of Health in the month of January, 1901: Percentage of adulteration, 29.03. The actual ratio of adulteration is very much less than this, since it is only suspicious articles of food to which the attention of the board is directed. Certain staple products, such as sugar, flour, and the various other cereal products, are very rarely adulterated, and require but little inspection. The work of the board is therefore mainly devoted to the inspection of such articles as it has found, by several years of experience, to be especially liable to adulteration. The ratio of samples of milk found to be below the standard was 34.9%, as compared with 40.9% for the preceding month, while the percentage of other articles of food found to be adulterated was 12.2. Ten complaints were entered in the courts during the month for violation of the laws relative to the inspection of food and drugs. Four of these complaints were for violation of the statutes relative to the sale of milk. Fines were imposed amounting to $110. The samples of drugs found to be adulterated were aqua destillata, acidum tannicum, calx chlorata, capsicum, extractum glycyrrhizæ, glycerinum, sodii phosphas, spiritus frumenti and tinctura iodi.

CITY HOSPITAL, QUINCY, MASS. — The trustees' report of the Quincy, Mass., City Hospital shows that the number of patients admitted to the hospital during the year 1900 was 230. Of this number 187 had been discharged, 28 had died and 15 now remain. Two nurses had been graduated during the year, and there are now 6 in the training class. The treasurer's report showed a deficiency for the year of $950. The total receipts for the year, including this amount, were $11,838.48, and the expenditures $11,780.76, leaving a balance of $57.72. The total endowment fund January 1, 1901, was $45,205.50. President William B. Rice offered to contribute half of the deficiency of last year provided the balance was raised in six days, and a committee was appointed to see if this could be accomplished.

Newton Hospital. — According to the treasurer's report of the Newton, Mass., Hospital, nearly all of the institution's indebtedness has been met and there is on hand at present $8,717. The earnings of the hospital for board, care and treatment of patients and earnings of the nurses outside during 1900 amounted to $31,527. The current expenses were $36,563.

Annual Meeting of Alumni Association of Boston City Hospital Graduates. — The Alumni Association of the Boston City Hospital Graduates held its annual meeting and dined at Young's Hotel, Wednesday, February 13th. The president, Dr. J. H. McCollom, was in the chair. Speeches were made by Drs. D. W. Cheever, J. G. Blake, Abner Post, George W. Gay, George B. Shattuck, J. L. Hildreth, H. W. Broughton, and Henry H. Sprague, Esq. Dr. W. E. Boardman was elected president, and Dr. W. A. Morris, vice president, for the ensuing year.

Smallpox in New Hampshire. — In the town of Harrisville, N. H., with 750 inhabitants, 15 cases of smallpox have appeared. Strict quarantine has been instituted over infected houses, and an isolation hospital is being prepared. The situation is somewhat serious. One case has also been discovered in the town of Milford.

Bill to Abolish Compulsory Vaccination. — The Committee on Public Health of the Massachusetts Legislature has been giving hearings on a proposed bill to repeal the law for compulsory vaccination.

Delinquency in Reporting Diphtheria. — Two physicians of Everett, Mass., have recently been fined in the court for failing to report a case of diphtheria in that city.

NEW YORK.

Typhoid Fever in Easthampton. — Prof. Olin H. Landreth, of the engineering school of Union College, recently visited Easthampton, Long Island, at the request of the State Board of Health, to investigate the causes of the prevalence of typhoid fever in the village. In his report he states that during and after the Spanish-American War there was constant intercourse between the people of Easthampton and the camp for returning troops which was established at Montauk Point, fifteen miles distant, where many working people were employed. The first marked results in the village were in the shape of numerous cases of tropical dysentery, during the autumn of 1898. One case of typhoid fever also occurred in August, 1898, the patient having been at the camp previously. During the following two years there were a considerable number of cases of typhoid, several of which occurred within 600 feet of the site of one of the hospitals where soldiers suffering from this disease were treated. The opinion is expressed that, whatever may have been the means by which the infection reached Easthampton, it became established there by soil implantation, and that it was disseminated either through the agency of percolation into the ground water, from which all the patients took part at least of their supply, or through the air, by the medium of dust blown by the winds. In conclusion, Professor Landreth says that unless vigorous sanitary measures are promptly taken there is danger of the disease developing, from the existing centres, into an epidemic during the coming season. Easthampton has long been a favorite summer resort for residents of New York, and has greatly increased in popularity since the extension of the railroad to the village a few years ago.

Building Fund of Mount Sinai Hospital. — At the annual meeting of the Mount Sinai Hospital, held January 26th, it was announced that the subscriptions to the building fund now amount to $1,190,830, leaving only $225,000 to be raised, and that work would be shortly commenced on the new buildings at Fifth Avenue and 100th Street. Among recent subscriptions are $125,000 for the children's pavilion, $75,000 for the dispensary building, $50,000 for the pathological building, and $20,000 for the equipment of the main operating room, all in memory of deceased relatives of the donors. Exclusive of gifts to the building fund, legacies and bequests to the amount of $14,771 and donations of $6,079 were received, and seven perpetual beds were dedicated during the year. The percentage of patients treated gratuitously was 80.60.

A Bust of the Late Horace Green, M.D. — At the meeting of February 7th, a bust of the late Dr. Horace Green, who died in 1866, was presented to the New York Academy of Medicine by members of his family. The presentation speech was made by Dr. D. B. St. John Roosa, who in the course of it took occasion to refer to the lack of recognition of the services of physicians to humanity in the Hall of Fame of the New York University. When, said he, the trustees were appointed to select names to be placed in the muster roll of men entitled to a niche in the Temple of Fame, not one member of the medical profession was considered worthy of a place either on that committee of 150 or in that hall.

President of the State Lunacy Commission. — At a meeting of the Neurological Society held February 5th, resolutions were adopted in regard to the qualifications required for the position of president of the State Lunacy Commission. They disapprove of any amendment of the insanity laws doing away with the clause providing that such officer shall have had at least five years' actual experience in the care and treatment of the insane.

A Heavy Verdict for Injuries. — On February 8th, a verdict for $28,000, said to be the largest ever given in Kings County against a railway company for personal injuries, was awarded in the Supreme Court, Brooklyn, to the wife of Dr. John M. Fowdrey. The suit was brought against the Brooklyn Heights Railroad Company, in one of whose cars Mrs. Fowdrey was severely injured in a collision.

Miscellany.

REPORT ON CONDITIONS AT BELLEVUE HOSPITAL, NEW YORK.

A COMMITTEE of five of the Medical Board of Bellevue Hospital, appointed for the purpose, has just made to Commissioner of Charities Keller a full report on the condition and needs of the hospital. The committee consisted of Drs. George B. Fowler, W. M. Polk, J. W. Brannan, A. Alexander Smith and Alexander Lambert. During the year 1900 24,300 patients were admitted, of whom no less than 11,370 were ambulance cases. The other hospitals in the city delivered in their ambulances to Bellevue 6,754 patients, of whom 107 died within twenty-four hours. This class of cases naturally affects materially the death rate, but the report says: "We cannot escape this burden so long as they (the other hospitals) are authorized by law to impose it upon us." Then follows a tabulated statement of the latest reported annual death rate in St. Luke's, the German, Presbyterian, Roosevelt, Mt. Sinai and New York Hospitals, as compared with that at Bellevue. "It is seen that, combined," the report comments, "they provide for a total of about 21,998 patients annually, with an average mortality of 9.44%; whereas this hospital provides for about 24,300 patients annually, with a mortality of 7.08%." The reception accommodation is entirely inadequate for the present needs of the hospital, and a number of suggestions are made for its improvement. The insane pavilion is carefully considered and the recommendation made by the Committee of Inspection is renewed, namely, that the patients sent to the pavilion should be placed under the charge of a competent salaried physician. There should also be an assistant resident physician, so that there should always be a well qualified medical man in attendance. The nursing service of the male ward of the pavilion should be in the charge of a carefully selected supervising graduate nurse, assisted by trained attendants. In the opinion of the committee, male pupil nurses are not fitted for the care of the insane.

Wards 32 and 34, known as the alcoholic wards, are the only ones in the hospital in which certain forms of epilepsy, hysteria, and even surgical mania, can be treated, and are greatly overcrowded, and the committee recommends that the members of the visiting staff exercise closer supervision of these wards than heretofore; also that the house physician and senior be assigned to duty in these wards, rather than a junior, as has sometimes been the case. While several of the pavilions standing on the grounds are commended, those recently completed, such as the ones for erysipelas and tuberculosis, are criticised on account of serious errors in design and construction. While the building now used for lying-in cases can only be condemned in every particular, plans are in preparation, it is stated, for converting the building on the hospital grounds formerly used as a medical college into a suitable place for such cases. As to the dispensary department the report says: "At the present time there is no direct supervision of any kind. Those left in charge are unfit to be in such a position, and there is a general laxity of discipline and observance of all rules that makes it a jumble of good and bad service. It can best be described as being in a state of vicious decay, and only the most radical measures can make it anything but a discredit to the institution."

Some fault is found with the feeding of the patients in the wards, particularly in the stages of convalescence, and it is suggested that a special committee be appointed with a view to placing the dietary as nearly as possible upon the same plane as was adopted in 1890. Outside the insane and alcoholic pavilions, where, as mentioned, pupil nurses are not approved of, the nursing service is regarded as satisfactory. In order to facilitate the work of the male nurses it is suggested that an assistant superintendent should be provided for each medical and surgical division. The report concludes in the following language: "We are of opinion that the rules and regulations of the hospital are correct upon the whole, that the various divisions and subdivisions of the force which is concerned in its conduct are, as far as circumstances permitted, organized upon correct lines. A division of authority has, however, existed, which has been responsible for the defective execution of the laws under which the hospital was supposed to live. This, as was stated to the commission some time ago, can be obviated by a head which places itself in contact with these various subdivisions and exercises immediate and vigorous control on all. This, we are glad to say, the commission has accomplished by installing Dr. Stewart. But permanent improvement is rendered difficult, and some of us believe impossible, in the face of the inefficiency of the paid employés, as a class, and the wretched accommodations furnished so large a portion of the staff, doctors and employés alike. Correct this and raise the per capita allowance of this hospital to a figure approximating that which obtains in like institutions in this city, and the crying evils will be permanently eradicated. Otherwise the outcome of this effort at improvement will end as the many which have preceded it. Decent service requires fair pay and decent accommodations. To which end we earnestly recommend that the main hospital building be replaced at once by a modern and more commodious structure, and the per capita allowance for conducting it increased to a figure approximating that under which other hospitals live."

WHAT IS BRANDY?

IN a case recently tried in Dublin before the Lord Chief Justice and a special jury in which the merits of cognac was under discussion, one of the witnesses is reported to have said that such a thing as cognac made from cognac grapes exclusively did not exist on the market. Two prominent firms, makers of brandy, have protested in a letter to the *Medical Press* that the statements made were false, and also incidentally that Cognac is a town, and not a vineyard. Commenting on the general question the *Medical Press* says:

"We recently discussed the question, 'What is Whiskey?' and events have occurred in the law courts during the past few days which render it necessary in the public interest to do the same for brandy. According to Dr. Murray, of dictionary fame, the original form of the word 'brande-wine' is a Dutch word, *brandewijun* — 'burnt' wine, — in familiar use abbreviated as brandy as early as 1657, but the fuller form was retained in official use down to the end of the seventeenth century. This brande-

wine is the *eau de vie de vin* of the French, the liquid which was the subject of Brande's papers (1811 to 1813) in the *Philosophical Transactions*, and the name brandy is properly restricted to the liquid distilled from the fermented juice of the grape. The well-known smell and flavor of brandy are due to the presence of ethers and aldehydes developed during the process of the maturing of the spirit; of these the most important is enanthic ether, which was discovered by Liebig and Pelvuze in 1836. They found that the body in question can be obtained in wine lees, and they showed that it is the ethyl ether of enanthic acid. Unfortunately this ether can be obtained from castor oil and other substances, so that its presence in no way proves that the liquid containing it is brandy. When the phylloxera oidium, and mildew, whose ravages in 1875 reduced the area under vineyards from six millions and a half of acres to less than three millions, the supply of grapes in the country round Cognac, in Charente, in the west of France, became insufficient to meet the demand for brandy; even the Armagnac district failed to meet the demand, and potato spirit, beetroot spirit, and grain spirit flavored with emanthic ether, colored with ergot and generally sophisticated, came to replace the true brandy in the British market. This substitute possessing none of the medicinal properties of cognac brandy, is capable of doing serious injury to any patient to whom it may unwittingly be given. We see no reason why the imports of brandy should not be submitted to examination from time to time, and the so-called 'trade' brandy destroyed at the port of entry. Until this is done the physician can protect his patient in no other way than by prescribing the liquor bottled by houses of repute in the trade, and, happily, there are several firms whose brands are trustworthy, and whose brandies can be prescribed with the confidence begotten of years that the patient will get true brande-wine — the liquor distilled from the fermented juice of the grape."

MEDICAL GENERALS.

Apropos the nomination of General Wood to be a brigadier general in the regular army, it is an interesting fact that he is not the first surgeon who has made a high military reputation on being transferred from the staff to the line. General Samuel W. Crawford at the outbreak of the Civil War was a captain and assistant surgeon stationed at Fort Sumter. As one of Major Anderson's officers he took more than a surgeon's share in the defence of the fort, actually commanding one of the batteries that responded to the Confederate fire.

Transferred to the line of the regular army, he accepted a brigadier's commission in the volunteers and subsequently rose to the command of a division, serving with distinguished credit at Gettysburg and in Grant's Virginia campaign. After the war, in which he won brevet-general rank in the regular army, he long commanded a regiment stationed in the South, actively engaged in the enforcement of the reconstruction laws. General Crawford was generally esteemed a most capable officer, though he did not escape the prejudice line officers have against officers who came into the line from a staff corps, as the Medical Department is. Sheridan at one time protested against Crawford's selection for a high command on the ground that he had been a "pill-roller," but had to admit that Crawford was at least an exception.

At no time was General Crawford likely to succeed to the command of the army, and therefore he did not challenge line sentiment to the extent General Wood challenges it. In the natural order of promotions and retirements, Brigadier-General Wood, if confirmed as such, will become Lieutenant-General Wood in 1909, and will not attain retiring age until 1924. It is the prospect of the army being commanded for fifteen years by a lieutenant general who began his military career as a surgeon that ruffles every feather in every chapeau of the army. — *Boston Transcript.*

Obituary.

ARCHIBALD HAMILTON JACOB, M.D.

In the death on January 9th in Dublin, Ireland, of Archibald Hamilton Jacob, B.A., M.D., T.C.D., F.R.C.S.I., medical journalism loses a man of conspicious prominence. He had for many years been connected, as editor, with the *Medical Press and Circular*, a periodical which has taken rank with the best of the English medical journals. He received his degree in medicine in 1862, and was at the time of his death sixty-three years old. His main professional interest apart from journalism was ophthalmology; he had for many years occupied the chair of ophthalmology in the Royal College of Surgeons, Ireland, and also held various hospital positions. The work for which he will be best known, however, was his able and dignified editorship of the *Medical Press*. To this he devoted much of his time. As a conversationalist he was brilliant, and as a man, both in his professional and private life, he filled a large place in the regard of his professional brethren.

Correspondence.

X-LIGHT KILLS.

Mr. Editor: — In the *Electrical Review* for January 5, 1898, I stated that the so-called x-ray burn could be produced by electricity when no x-light was present. Here I show that when electricity is excluded, death can be produced by x-light without burning. A strong male guinea pig was placed in a grounded Faraday chamber and exposed to x-light for two hours a day, the source of light being outside. He died on the eleventh day. The experiment was repeated, with death on the eighth day. No burns in either case. There were many details connected with these experiments which are not given, for I remember how many hours of sunlight I have lost through being obliged to read long papers. I try to get this note printed in a medical instead of a physical journal, where the others of the series have appeared, for several reasons: (1) Because the experiments separated the effects of electricity from those of x-light and showed clearly what a powerful agent x-light was. (2) To call attention to need of using this power in new growths in the interior of the body. (3) To give an opportunity to repeat three precautions I have advised: (*a*) the physician in using the fluoroscope should wear glasses of the most non-radiable material that is transparent; (*b*) the x-light tube should be in a non-radiable box from which no x-light can escape except the smallest cone of rays which will cover the area to be examined, treated or photographed; (*c*) the patient should be covered with a non-radiable material, exposing only the necessary area.

Very truly yours,
William Rollins.

METEOROLOGICAL RECORD

For the week ending February 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	.0 P. M.	
S...27	29.15	27	33	21	72	54	63	N.W.	W.	14	10	O.	O.	
M..28	29.06	26	30	22	66	63	64	W.	N.W.	12	15	F.	O.	
T..29	29.64	23	28	18	51	48	50	W.	W.	26	12	O.	C.	
W..30	29.96	23	29	17	68	87	78	S.E.	E.	3	12	O.	N.	.01
T..31	29.64	26	29	23	93	82	88	N.	N.W.	17	7	N.	N.	.13
F...1	29.89	24	32	17	67	61	64	W.	W.	12	12	C.	C.	.01
S....2	30.20	22	28	16	63	40	52	W.	W.	8	9	C.	C.	
	29.65		30	19			66							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 2, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1332	352	24.15	—	1.05	1.12	3.00
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	552	103	18.46	17.37	1.08	1.63	1.81
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	262	65	21.39	23.68	—	1.91	1.91
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	113	29	21.24	19.47	—	5.31	2.65
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	65	23	21.56	24.64	—	—	—
Boston	560,892	243	58	25.95	19.77	3.70	2.47	5.76
Worcester	118,421	54	15	24.05	14.80	—	—	—
Fall River	104,863	29	9	20.70	17.25	—	—	—
Lowell	94,869	30	11	29.97	19.98	—	3.33	3.33
Cambridge	91,886	41	19	21.96	14.64	—	—	7.32
Lynn	68,513	23	6	21.75	30.44	4.35	—	4.35
Lawrence	62,559	21	4	14.28	14.28	—	—	—
New Bedford	62,442	34	15	14.85	35.64	—	—	2.97
Springfield	62,059	32	9	21.84	21.84	—	3.12	—
Somerville	61,643	18	8	33.30	11.10	5.55	—	5.55
Holyoke	45,712	23	13	26.10	21.75	4.35	—	—
Brockton	40,063	10	1	20.00	60.00	—	—	—
Haverhill	37,175	9	2	—	11.11	—	—	—
Salem	35,656	18	4	11.10	—	5.55	5.55	—
Chelsea	34,072	11	1	9.09	—	—	9.09	—
Malden	33,664	9	4	22.22	22.22	—	—	11.11
Newton	33,587	9	4	22.22	—	—	—	11.11
Fitchburg	31,531	10	3	10.00	50.00	—	—	—
Taunton	31,036	—	—	—	—	—	—	—
Gloucester	26,121	7	2	28.58	—	—	—	—
Everett	24,336	5	2	60.00	20.00	—	—	—
North Adams	24,200	4	—	—	25.00	—	—	—
Quincy	23,899	7	3	28.58	14.29	—	—	14.29
Waltham	23,481	8	—	12.50	25.00	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	12	3	16.67	16.67	—	—	—
Medford	18,244	9	3	22.22	22.22	—	—	22.22
Newburyport	14,478	7	1	28.58	—	—	—	—
Melrose	12,962	7	—	—	28.58	—	—	—

Deaths reported 3,032; under five years of age 765; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 765, consumption 387, acute lung diseases 331, diphtheria and croup 91, diarrheal diseases 69, influenza 56, typhoid fever 45, scarlet fever 33, whooping cough 19, cerebrospinal meningitis 9, measles 4.

From whooping cough New York 8, Pittsburg 3, Philadelphia and Somerville 2 each, Baltimore, Worcester, Lowell, and Cambridge 1 each. From cerebrospinal meningitis Worcester 4, Gloucester 2, Boston, Lynn and Everett 1 each. From scarlet fever New York 14, Boston 9, Philadelphia 6, Lynn, Somerville, Salem and Holyoke 1 each. From measles New York 2, Philadelphia and Boston 1 each. From typhoid fever New York 15, Philadelphia 9, Pittsburg and Boston 6 each, Baltimore 5, Lowell, Springfield, Salem and Chelsea 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 19th, the death rate was 19.1. Deaths reported 4,320: acute diseases of the respiratory organs (London) 422, whooping cough 99, diphtheria 95, measles 79, fever 38, diarrhea 36, scarlet fever 27.

The death rates ranged from 13.9 in Croydon to 24.8 in Sunderland: Birmingham 21.8, Bradford 15.8, Brighton 19.6, Bristol 19.0, Cardiff 14.1, Derby 16.7, Halifax 15.1, Hull 21.2, Leeds 21.3, Liverpool 23.4, London 18.7, Manchester 20.4, Newcastle-on-Tyne 18.0, Norwich 18.8, Nottingham 18.9, Plymouth 22.1, Portsmouth 16.0, Sheffield 20.3, Swansea 23.3, West Ham 14.9.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 9, 1901.

J. A. GUTHRIE, passed assistant surgeon, detached from the "Franklin" and to the "New York," February 18th.

A. M. D. MCCORMICK, surgeon, detached from the Naval Hospital, Norfolk, February 2d, and to the Naval Academy.

R. SPEAR, passed assistant surgeon, detached from the "Buffalo" and to the "Isla de Luzon," on arrival of former at Cavite.

W. B. GROVE, assistant surgeon, detached from the "Vermont" and to the Naval Hospital, New York.

W. H. BUCHER, assistant surgeon, detached from the Naval Hospital, New York, and to duty at the Naval Hospital, Norfolk, Va.

M. V. STONE, assistant surgeon, detached from the "Isla de Luzon" and ordered to the "Buffalo."

E. Z. DERR, medical inspector, ordered to the Naval Academy, February 14th.

W. R. DUBOSE, surgeon, detached from the Naval Academy, February 13th, and ordered to the "Wisconsin."

D. M. BRE[illegible]OLETTE, medical inspector, ordered to the "New York," Feb[illegible]ary 16th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEBRUARY 7, 1901.

BAILHACHE, PRESTON H., surgeon. Relieved from duty as chairman of the board for the physical examination of Second Assistant Engineer R. F. HALPIN, Revenue Cutter Service. February 4, 1901.

VAUGHAN, G. T., surgeon. Detailed as chairman of the board for the physical examination of Second Assistant Engineer R. F. HALPIN, Revenue Cutter Service. February 4, 1901.

CORPUT, G. M., assistant surgeon. Bureau order of January 26th, directing Assistant Surgeon Corput to proceed to Cleveland, O., for temporary duty, revoked. February 2, 1901.

FRANCIS, EDWARD, assistant surgeon. To proceed to Cleveland, O., and assume temporary command of the service during the absence on leave of Surgeon PETTUS. February 2, 1901.

BALLARD, J. C., acting assistant surgeon. Granted leave of absence for five days from February 7th. February 4, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, February 18th, at 8.15 P. M.

Paper: Dr. Abner Post will present the subject of "Accidental Inoculations of Syphilis." The paper will be illustrated by many lantern slides.

ARTHUR K. STONE, M.D., *Secretary*, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene will hold a regular meeting Wednesday, February 20, 1901, in Sprague Hall, Boston Medical Library Building, 8 The Fenway, at, 8 P. M.

At 8 o'clock: Dr. C. F. Withington, "Experience with the Widal Reaction in Typhoid."

At 8.15 o'clock: Dr. Charles Harrington: "Dissemination of Typhoid through Oyster Infection."

At 8.30 o'clock: Dr. Calvin Page, "A New Method for the Early Diagnosis of Typhoid." Discussion by Drs. G. B. Shattuck, H. F. Vickery and R. C. Cabot.

HENRY F. HEWES, M.D., *Secretary*.

RECENT DEATH.

HENRY C. HILL, M.D., of Lockport, N. Y., died on February 8th, from Bright's disease, at the age of sixty-nine. He was a native of Vermont and served as assistant surgeon of the 128th Regiment, New York Volunteers, in the Civil War.

Original Articles.

U. S. ARMY PATHOLOGICAL LABORATORIES IN THE PHILIPPINE ISLANDS.[1]

A DESCRIPTION OF THE WORK OF THE ARMY PATHOLOGICAL LABORATORIES AND GENERAL REMARKS ON THE INVESTIGATION OF THE DISEASES OF THE PHILIPPINES.

BY JOSEPH J. CURRY, M.D.,

Acting Assistant Surgeon, U. S. Army; Member of the Board of Army Officers Appointed to Investigate the Diseases of the Philippines.

PATHOLOGICAL LABORATORIES.

THERE were in and near Manila, at the time of my arrival in November, 1899, including the one on the hospital ship *Missouri*, three pathological laboratories. One at the First Reserve Hospital, one on the hospital ship *Relief* and, as mentioned above, one on the hospital ship *Missouri*. The two latter were necessarily small, but were well equipped.

Laboratories on hospital ships. — The laboratory on the hospital ship *Missouri* was located a little forward of midships on the main deck. It was well lighted by four ports, and for night work electric lights on heavy portable stands furnished excellent illumination. The laboratory was furnished with all necessary bacteriological and chemical apparatus, including a thermostat regulated as well as heated by electricity. During the entire voyage from New York to Manila, *via* Suez, the readings of the thermometer in the chamber of the thermostat were noted four times a day. During this voyage we passed from 40° parallel of latitude in the Atlantic to the 2° parallel in the Singapore Straits, and at no time was there a variation of more than $\frac{1}{2}$° C. in the thermostat chamber. The electric heater and regulator was made by the American Electric Heating Company of New York, and was designed by that company. It stood the test of varying temperatures perfectly, and is the ideal method of operating a thermostat on shipboard. In addition to ensuring constant, even temperature it has the advantage of absence of any danger from fire.

As to the advantages of laboratories on hospital ships, in the first place, in smooth water and at anchor, it is possible to do practically the same work as in a laboratory on land. In addition to the value of the laboratory for the purpose of establishing diagnoses in cases on shipboard, the hospital ship, moving as it does to the various ports in the islands, can render the service of a portable laboratory to the cities and the towns the ship reaches. In the case of obscure fevers in other ports than Manila the laboratory of the hospital ship *Relief* has done valuable service. On a trip of the *Relief* to the southern Philippines in March and April, 1900, while Dr. E. R. Hodge, U. S. Army, was in charge of the ship's laboratory, he was enabled by means of it to render valuable service to the medical officers at a number of posts, in performing Widal's test and making examinations of the blood for malaria, etc. In the event of an epidemic in any port distant from Manila the hospital ship laboratory would be invaluable.

In the tropics laboratories are even more of a necessity than in the temperate zones.

[1] Extract from a report to the Surgeon General of the Army on the Diseases of the Philippines.

In a fairly rough sea all examinations, save those with fluid cultures, were made with little trouble. The microscope and electric light stands were kept from slipping about by means of clamps fastened to the working table.

Laboratories in Manila, P. I. — In the earlier days of our occupation of Manila there was little opportunity to establish a laboratory, but at the First Reserve Hospital, soon after its establishment in August, 1898, a small laboratory in charge of Assistant Surgeon McVey, U. S. Army, did valuable work. Unfortunately Assistant Surgeon McVey contracted typhoid fever during his work and died. Assistant Surgeon R. P. Strong continued the work begun by Dr. McVey, and shortly afterwards Professors Flexner and Barker, of Johns Hopkins University, established their headquarters in this laboratory, bringing with them from Hong Kong a full laboratory equipment. The investigations of Professors Flexner and Barker in the laboratory of the First Reserve Hospital stimulated pathological work in Manila.

Additional laboratory apparatus was then obtained from the United States, and when I arrived there December 25, 1899, I found practically all the apparatus necessary for investigation work. At that time there was no other pathological laboratory in the islands. The Manila Board of Health had a building in the walled city which was set apart for a laboratory, but had not yet received a bacteriological equipment. Later, in February, 1900, some bacteriological apparatus was obtained by the Board of Health from the laboratory of the First Reserve Hospital and from the medical purveyor. In May, the Board of Health received from Japan apparatus selected by Assistant Surgeon Calvert during his visit to that country, so that on June 15, 1900, the time of my leaving the Philippines, there were two thoroughly equipped army pathological laboratories in Manila.

The valuable work performed by these laboratories has fully justified the liberality of the surgeon general toward them in the matter of supplies and of equipment. In addition to routine clinical and bacteriological examinations made to establish diagnoses in the cases at the military hospitals, there was conducted, first at the First Reserve Hospital, and later at the Health Board Laboratory, the work on the bubonic plague. At both laboratories investigation work was carried on in other diseases also. Owing to the great amount of routine work there was little time for research work, but still in spite of this, and of a trying climate, considerable was accomplished in this department.

First Reserve Hospital Laboratory. — Here in addition to the routine work of the hospital many blood examinations (including Widal's test for typhoid) were made for other hospitals in Manila. All the dead were brought to the First Reserve Hospital Mortuary, and many autopsies were performed here. There were obtained from these autopsies many specimens of value for the Army Medical Museum. These were turned over to Dr. E. R. Hodge, U. S. Army, who will prepare them and will attend to their shipment to the Army Medical Museum, Washington, D. C.

In the study of the diseases of the islands these laboratory records will be invaluable. It would be of

great advantage if an expert stenographer was attached to the laboratory staff. The climate of the tropics will not permit of the close application to indoor work that is possible in the United States, and the actual time the observer can devote to laboratory work is necessarily shortened. The writing of records takes fully as much time as to do the work and is especially exhausting. The assistance of a stenographer would make it possible for the investigators to devote their entire time to their actual work, and important records now lost would be saved.

For about six weeks from the first of January to the middle of February, 1900, it was necessary to conduct the bacteriological work on bubonic plague at the First Reserve Hospital Laboratory, for the reason that it was the only place at the time equipped for such work. The work on the bubonic plague was abandoned in this laboratory just as soon as the Board of Health established its laboratory.

THE DISEASES OF THE PHILIPPINE ISLANDS.

General remarks. — The Board of Medical Officers to investigate the diseases of the islands followed the recommendations of the surgeon general, and pursued their investigations individually.

Assistant Surgeon Strong had already begun work on dysentery, so this subject was assigned to him. As the work on bubonic plague was under the supervision of the Board of Health, and as Assistant Surgeon W. J. Calvert had performed the greater part of the investigation work, the plague was assigned to him. The study of the fevers of the Philippine Islands was allotted, as special work, to me. Owing to the illness of Assistant Surgeon Strong from December 25, 1899, to February 10, 1900, I was obliged to give nearly all this time to routine laboratory work of the First Reserve Hospital, and had little time to devote to special work. During my service at the First Reserve Hospital, however, I made many visits to the wards, and with the assistance of Dr. E. R. Hodge and Hospital Steward Musgrave, U. S. Army, made many blood examinations. Nearly two months more were taken away from special work by my temporary detail on the Board of Health. Here I unfortunately obtained an infected hand and arm which became troublesome. This was followed later by malarial fever, which finally obliged me to return to the United States. All this interfered with special work, to my great regret.

There were many fevers met with which were not typical in their course. Of these fevers some were of a long duration, but more of from a few days' to a week's duration. These were reported by medical officers under the terms of malarial, dengue, febricula, etc. Many of the short fevers were uninfluenced by quinine administered in large doses. These fevers generally ran their course without regard to treatment, and nothing satisfactory could be learned from the history of their cases. There were a number of long-continued fevers, in which blood examinations were negative. Repeated examinations for the malarial parasites, and Widal's test for typhoid, were negative. Some of these long-continued fevers proved to be Malta fever. It is to be regretted that these obscure fevers could not have been studied more thoroughly. The subject of the fevers of the Philippines is a promising one. The field here is a rich one, and only needs careful, systematic making of blood examinations, combined with clinical observations, to shed more light on many of these now obscure fevers. Further on in this report I will speak more of the atypical fevers.

Bacteriological investigation in the tropics is rendered difficult by the frequency with which cultures become contaminated by air organisms and on account of the rapid putrefactive process in cadavers. Even after the exercise of the greatest care, cultures are frequently contaminated by rapidly growing extraneous organisms. This is especially true of plate cultures. It is a trying condition and adds greatly to the difficulties of the work. It is necessary to make several cultures in the tropics where one usually suffices in the United States.

The bacterial flora of the tropics is apparently as rich and varied as its botanical flora. Many organisms were met with in the course of our work that were unknown to us. Lack of time prevented a careful study of many of these organisms. One fact that struck us forcibly was the frequency of the occurrence of bacilli in the cultures from various local and general infections.

For routine work it was found that agar-agar plate cultures were the most satisfactory. Solidified blood serum slants and agar slants were also used to a limited extent. Gelatine could not be used much on account of the heat.

It was difficult at times, owing to the destruction of so many cattle by rinderpest, which prevailed in the vicinity of Manila, to obtain cow's milk, so that caribou milk had to be used. This was not found to be so satisfactory as cow's milk. Culture media so frequently became contaminated that it was with difficulty that a constant stock of fresh media was kept on hand.

The country is a rich one and not unhealthy for a tropical climate. The diseases of the tropics until very recently have received little scientific study. Heretofore it has been thought generally that the tropics, *per se*, were incompatible with the white man. This is not true. When the same modern sanitary conditions existing in the United States are put in operation in the Philippines, that country will be as habitable as our Southern States.

The records of the First Reserve Hospital from the time of its establishment in August, 1898, to June 1, 1900, show a total of 21,955 admissions from all causes, including wounds and injuries. There were 1,874 admissions on account of wounds and injuries, which leaves 20,081 cases treated in the medical wards of this hospital. The First Reserve Hospital was the first of the army general hospitals established in the Philippines. It was established immediately upon the occupation of Manila and was the main receiving hospital in the islands up to June, 1900. The records of this hospital were remarkably well kept and are very complete. The First Reserve Hospital received most of the sick that came to Manila, not only from stations in Luzon, but also from the southern islands *via* the hospital ship *Relief* and army transports.

The records of this hospital form a fairly accurate medical history of our army in the Philippines. The records of the First Reserve Hospital are especially valuable because of the fact that the diagnoses have been confirmed in so many cases by laboratory examinations. In addition to the numerous examinations of the blood, and of pathological material, there were performed autopsies on most of the cases which died

from March, 1899, to June, 1900. There were 255 post-mortems made during this time, including 98 on dysentery, 40 on typhoid fever, and 9 on the malarial fevers.

DYSENTERIC DISEASES OF THE PHILIPPINE ISLANDS, WITH SPECIAL REFERENCE TO THE AMEBA COLI AS A CAUSATIVE AGENT IN TROPICAL DYSENTERY.[1]

BY JOSEPH J. CURRY, M.D.,

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INTESTINAL DISEASES.

Of the 20,081 medical cases treated (August, 1898, to June, 1900) in the First Reserve (Military) Hospital, Manila, P. I., there were 1,999 cases admitted for dysentery, and 2,186 cases for diarrhea, a total of 4,185, or nearly 21% of the total cases. The majority of these cases of diarrhea were probably dysentery. Of the cases which came to the hospital with the diagnosis of diarrhea and died, the post-mortem in most instances showed them to be dysentery. Some of the cases diagnosed as diarrhea proved to be typhoid fever. There were a number of patients who had a moderate diarrhea and who under treatment soon improved and returned to duty. It is safe to say that one-half of these 2,186 cases diagnosed diarrhea were properly dysentery. This would give a total of about 3,000 cases of dysentery, or about 15% of the admissions.

Of other diseases involving the intestinal tract 653 were typhoid fever and 478 may be included under the term "other gastro-intestinal diseases." These latter were for the greater part temporary disturbances of the gastro-intestinal tract, common in the tropics among new arrivals, and mainly the result of injudicious eating and drinking.

Dysentery. — Dysentery is responsible for the highest mortality among our troops on service in the East, but even this statement does not give any adequate idea of the gravity of this disease. In most other diseases there is a limited course, a period of convalescence and the soldier is fit for his usual duty. With dysentery this is not true. For one man who returns to duty and remains well, there are many who return to be sent back to the hospital again and again. Dysentery in the islands is responsible for more *permanent* disabilities than all the rest of the diseases combined. A complete permanent recovery in the islands is the exception to the rule.

It is difficult to say how many of the cases diagnosed diarrhea should be called dysentery, therefore the mortality percentage cannot be given with accuracy. Then, too, many cases of dysentery were transferred to other hospitals and to the hospital ships, and some died on the transport hospitals en route to the United States. There were 132 deaths from dysentery at the First Reserve Hospital up to June 1, 1900. Ninety-eight of these cases of dysentery came to post-mortem. Of these 66 were found to be amebic dysentery, 20 acute dysentery, and 12 subacute dysentery.

Source of infection. — In the great majority of cases among our troops (in practically all the cases I investigated) there was a history of drinking polluted or uncertain water. The almost universal history obtained was that while in the more permanent camps and drinking boiled water the men were free from any serious disturbance of the bowels, but during a march when no boiled water was to be had, the men drank from any stream or pool and diarrhea began.

[1] Extract from a report to the Surgeon General of the Army on the Diseases of the Philippines.

COINCIDENT INFECTIONS.

Malarial fever and dysentery. — The most frequent complication of dysentery in the Philippine Islands is malaria. Malarial attacks are common in the course of chronic dysentery and subacute dysentery. A malarial spleen and active malarial parasites were found in 4 out of 66 cases of chronic amebic dysentery which came to autopsy, and once in 12 cases of subacute (non-amebic) dysentery. In 157 cases of chronic and subacute dysentery among soldiers sick in the First Reserve Hospital, Manila, in which blood examinations were made, the malarial parasites were found in 36, or in nearly 23%. In 1 case of acute dysentery, also, early in the disease, the estivo-autumnal malarial parasites were found.

Typhoid fever and dysentery. — Typhoid fever and amebic dysentery combined occurred twice in the 66 cases. In both cases at autopsy typical lesions of acute typhoid fever were found in the ileum, and there were characteristic ulcers of amebic dysentery in the colon. Microscopic examination of the contents of large intestines in both cases showed the presence of active amebæ, and from the cultures from the spleen and mesenteric glands in both cases the typhoid bacillus was obtained. Widal's test was positive also in each case. One of these cases also had pulmonary tuberculosis. In 1 of these cases perforation of a typhoid ulcer of the ileum was the immediate cause of death. In a third case there were recent healed typhoidal ulcers in the ileum and amebic dysentery.

Pneumonia and dysentery. — Acute lobar pneumonia occurred once in this series of 66 cases of amebic dysentery.

Pulmonary tuberculosis. — There were 2 cases of active and quite extensive pulmonary tuberculosis found in the series of 66 amebic cases. One case was that of a triple infection (amebic dysentery, typhoid fever — acute stage — and pulmonary tuberculosis). In this latter case, which came to autopsy, active amebæ were found in contents of the large intestine and in the scrapings from the typical amebic ulcers of colon. Typhoid bacilli were obtained in cultures from the spleen, and mesenteric glands and cover-slip examinations of caseous contents of lung cavities showed the presence of numerous tubercle bacilli.

Amebic dysentery. — The amebic type occurred in a little over 66% of the cases of dysentery which came to autopsy. Amebic dysentery is the most common type of dysentery found all over the islands. It is responsible for many more deaths than all the other types combined. Its complications and sequelæ are frequent, and it is the most stubborn type in yielding to treatment. It is not my purpose in this report to discuss the etiology of dysenteric diseases of the Philippines. Assistant Surgeon Strong, U. S. Army, will discuss this in his special report, upon which he is now at work. I cannot, however, refrain from expressing my opinion that the ameba coli is a very important etiological factor in the causation of one type of tropical dysentery. In these 66 cases of amebic dysentery there occurred abscess of the liver in 11, or 16⅔%, and in 15, or nearly 25% of these 66 cases, there

was a general peritonitis, due to perforation of ulcer of the colon in 11, and to rupture of liver abscess in 4. In addition to these 15 a general peritonitis occurred once without any perforation of bowel, the infection in this latter case travelling through the thin base of an ulcer in the cecum. (In the 32 cases of non-amebic dysentery there was no case of abscess of the liver, no perforation of the intestine and but 1 of general peritonitis). In all these cases of abscess of the liver active amebæ were demonstrated in both the abscess contents and in the contents of large intestine. Cultures from the liver abscesses were sterile.

The ameba coli: its relation to tropical dysentery.— Whether the ameba coli is primary or secondary, we have the strongest evidence that it *is* certainly a very *important* etiological factor.

There is a disposition recently on the part of many investigators to regard the presence of the ameba coli in the intestine in cases of dysentery as secondary and of itself not an important etiological factor. Several observers have found amebæ, not to be differentiated from the one known as the ameba dysenteriæ, in the stools of those not suffering from dysentery. In other words, they report finding these amebæ in the normal intestines. This is regarded by them as strong evidence against the amebæ as an etiological factor. They believe that the primary trouble in dysentery is started by bacteria and the amebæ then invade the damaged tissue.

It appears that this theory of the secondary and comparatively unimportant part played by the ameba coli in the causation of tropical dysentery rests mainly on the fact that this same organism occurs in the healthy intestine and may exist there some time without causing dysentery. The finding of the ameba in healthy intestines is no more weighty an argument against it as an etiological factor in tropical dysentery than the finding of Klebs-Löffler bacillus in healthy throats is against the Klebs-Löffler bacillus being the causative agent of diphtheria, or the finding of the pneumococcus in the mouths of healthy individuals is against the pneumococcus as the causative agent of acute lobar pneumonia.

It is a well recognized fact that the Klebs-Löffler bacillus often exists in the upper air passages of individuals and they have not diphtheria. It is well known also that the pneumococcus occurs frequently in the mouths of healthy persons. Still the Klebs-Löffler bacillus is accepted by the entire world as the causative agent of diphtheria, and the pneumococcus generally accepted as the causative agent of acute lobar pneumonia.

The fact of the amebæ occurring so frequently in the liver abscesses contents found in the course of tropical dysentery; the absence of bacteria from these abscesses generally; the rarity of abscesses of the liver in the course of dysenteries other than those in which amebæ are present, and the general constant characteristic pathological picture at post-mortem, all weigh strongly in favor of the ameba coli as the principal causative agent in *one type* of tropical dysentery. I speak of *one type* of tropical dysentery because I believe there exist in the tropics, as elsewhere, several varieties of dysentery.

Acute "epidemic" dysentery. — In several of the cases of acute dysentery which came to autopsy during my service at the First Reserve Hospital Laboratory, a bacillus apparently identical with that described by Shiga and by Flexner was found in the cultures. Comparing the cultures obtained from these cases with a culture of Shiga's bacillus dysenteriæ, sent me from Japan by Professor Kitasato, they were apparently identical. I received in March, 1900, from Professor Kitasato, 300 cubic centimetres of anti-dysenteric serum prepared at the Tokio Institute for Infectious Diseases. I am unable to give any opinion as to its efficiency in cases of acute epidemic dysentery, but from Drs. W. J. Calvert and E. R. Hodge, U. S. Army, who have visited the Tokio Institute, I learn that this serum has given remarkably good results. Dr. Hodge, who spent a month October last in Japan, and visited the Tokio Institute for Infectious Diseases, writes me that the results in acute epidemic dysentery with this serum are second only to the results obtained with diphtheritic antitoxin.

We have observed two distinct types of dysentery in the Philippines, one amebic dysentery and the other an acute dysentery, in a number of cases of which the bacillus dysenteriæ of Shiga occurred. In addition to these two types, we have met cases of sub-acute and chronic dysentery in which neither the ameba coli nor the bacillus dysenteriæ were found.

UTERINE FIBROIDS.

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THE frequency with which fibromyomata occur in the uterus has always made them a subject of great interest as well as great importance. Fortunately they are often unassociated with any serious discomfort, and remain undetected during the lifetime of their possessor. How often this is true will be appreciated when we consider that from the study of a very large number of autopsies Boyle concludes that they are present in 20% of all women over thirty-five years old, while in women of fifty Kolb estimates their occurrence at 40%. On the other hand, Faultain examined the records of 2,230 gynecological cases at the Edinburgh Royal Infirmary, and found that in only 8% was fibromyoma the assigned cause of their condition. At the Memorial Hospital for women and children in this city, out of 1,724 gynecological cases 131, or 7.6%, were due to the presence of fibroid. A somewhat larger percentage might be found in other localities and in the private records of specialists to whom were referred only the severer cases, but the apparent discrepancy in these figures, it will, I think, be generally admitted, is to be explained by the very large number of cases in which the growths never attain any considerable size or give rise to any special discomfort. The mere presence of such a tumor accidentally discovered need not, therefore, be the occasion of any alarm, nor should it be made the excuse for surgical interference. On the other hand, fibromyomata may undergo degenerative changes that imperil the life of the individual or give rise to symptoms that place her in a condition of chronic invalidism. The discrimination between those cases which can safely be left alone and those which ought to be surgically treated constitutes a problem of the greatest interest and importance, while it is almost equally important and difficult to make a choice among the various measures proposed for their relief.

With regard to those fibroids which give rise to severe and exhausting hemorrhages (and this includes nearly all of the submucous as well as many of the interstitial forms), there is little opportunity for any difference of opinion. Some active interference is almost always necessary — always if it cannot be readily controlled and progressively diminished by the use of ergot, hydrastis, and similar uterine hemostatics. Interference is equally demanded in the rapidly growing forms. Rapidity of growth suggests at once the possibility of cystic or other degeneration, is apt to interfere with the natural duties and activities of the patient, and very likely to cause early impairment of her general health. It is true that this growth may diminish or even stop naturally at any time, but in view of the uncertainty of any such fortunate occurrence and the certainty of being able to deal more easily and more safely with a smaller than with a larger tumor, I think it unwise to postpone operation. Persistent pain, interference by reason of its size with the functions of bladder or rectum, and ureteral obstruction, are less common, but equally positive, indications for surgical intervention. I believe the moral effect of the knowledge of the existence of such a tumor on the part of the patient is oftentimes a very important factor in determining the necessity of operation. Upon some temperaments the knowledge of its existence, provided it were otherwise harmless, would have little influence, but upon others it alone would be sufficient to cause a state of permanent invalidism. I am well aware that this is an indication which may easily be made the excuse for operating in every case, but although liable to abuse, I am convinced that at the hands of a careful, conscientious operator it is a factor always worthy of consideration. Menstrual irregularities and dysmenorrhea, and the multitude of reflex disturbances that are sometimes rightly and perhaps as often wrongly attributed to the presence of fibroids, constitute problems the correct interpretation of which must always be among the most puzzling and most difficult duties of the physician. They are often the principal symptoms for which the patient seeks relief. When they are the only ones, unless their connection with the growth seems very clear, all reasonable means should be exhausted before advising its removal.

It has always been the custom to consider the age of the patient as an important factor in determining the necessity of operation, and it is perhaps as true now as ever that the younger the patient, other things being equal, the stronger the indication for surgical interference. On the theory that the growth of fibroids ceased with the menopause, it has been commonly held that if a patient has approached somewhere near the time when the menopause should be expected, she should be made as comfortable as possible by palliative measures or by simple surgical expedients, and thus tided along until nature shall have effected the cure. Further investigations, however, show that this is by no means always true, that fibroids continue their growth independently of the menopause. Kattmann, in a study of 400 cases, found that in nearly 25% neither climacteric nor menopause had any hindering influence on their growth. This is especially true of those which have undergone cystic degeneration. Another factor of almost equal importance in this connection is the effect of fibroids to delay and prolong the menopause, an effect particularly trying to the patience as well as to the strength of the patient. In view of these possibilities, I have felt that age should be given a place of very minor consideration in determining the question of operation, and have preferred to decide that question upon the evidence derived from its history and symptoms in the way I have already referred to, and without any special reference to the patient's age — the age of the tumor, its activity and its influence seem to me very much more important than the age of its possessor.

In a very hurried and general sort of way, I have rehearsed the chief factors upon which I should decide for or against operation in any given case as it presented itself to me. When surgical interference has been deemed necessary, one is brought face to face with the problem of choosing which of several methods is best adapted to each individual case. It would be difficult here, as in most surgical problems, to lay down hard and fast rules for our guidance. I do not intend to try to do that, but I thought it would be interesting, if not profitable, to take up my own experience with the different methods of operating, their results, and some of the impressions that experience has made upon me. I find that I have dealt with uterine fibroids by dilatation and curettement, by removing submucous forms piecemeal through the dilated cervix by tubo-ovariotomy, by hysteromyomectomy (vaginal and abdominal), and by myomectomy. In all there are 50 cases, with 3 deaths. The ideal operation would be one that was at once safe and free from permanent mutilation. Dilatation and curettement answers both these requirements, and is the simplest of the various surgical procedures which we have to consider. It is undertaken only when hemorrhage becomes a factor so important as to demand relief, and yet not sufficiently severe to require more radical interference. I have resorted to it in 5 cases. In 1, a woman forty-three years old, whose periods of flowing were longer than the intervals, a very small fibroid was found at the fundus and scraped away. There has been a very decided improvement in the matter of hemorrhage, but smaller interstitial nodules have since enlarged so much as to almost fill the pelvis, and give rise to pressure symptoms causing great annoyance. I think it not improbable that further interference will be necessary, unless the menopause, which ought to come soon, shall arrest their growth. In a second case in addition to curetting, I steamed the uterine cavity according to the method of Johnson, of Boston, two periods of forty seconds each, but though there were no subsequent hemorrhages, the brown, watery discharge which had existed for several months continued as before.

Microscopical examination of the scrapings in this case, by Dr. Baker, led to a suspicion of their malignant origin, and the uterus was subsequently removed through the vagina. Its section disclosed a fibroid of the interstitial variety situated in the fundus about as large as a robin's egg. The degenerative changes in the endometrium were of the chronic inflammatory type, not malignant. The patient made a prompt recovery, but remains in a state of extreme mental depression, which has existed ever since the uterine discharge first appeared. In this case all the symptoms, discharge, hemorrhage and mental depression, had come on years subsequent to the menopause. A third case returned to the hospital with request for removal of

the tumor. The symptoms seemed hardly to justify so radical a measure, and her request was denied by my colleague who saw her at that time, and she has since been lost sight of. The other 2 cases were relieved of their symptoms, but their subsequent history after two or three months is unknown.

One of the cases in which I removed a submucous fibroid through the cervix had been previously curetted with little or no benefit. As a means of gaining time — as in waiting for the menopause, or in preparing the patient for a more serious operation — curettement undoubtedly has its advantages, but the results are often unsatisfactory, and are usually followed by a recurrence of the symptoms. It seems to me to be indicated chiefly in young women, when it is our duty to make every effort to preserve the uterus and appendages. The hemorrhage may be due to a small submucous fibroid, which may be removed or its subsequent delivery *per vaginam* favored by the curette. But its field of usefulness is, it seems to me, pretty limited, and likely to grow smaller. Closely allied to this is the operation for the removal of those fibroids which project into the uterus by dragging them down through the dilated cervix and cutting them away piece by piece. I have had 13 of these cases, and while there has been no death, I have had serious septic complications in several of them. Besides general sepsis, I have had in 3 cases a greater or less degree of phlebitis affecting the femoral vein. Some of these cases come to us already septic from the sloughing of the superficial portions of the tumor, others become septic through the sloughing of the shreds of tissue which it is almost impossible to avoid leaving behind in the uterus. Occasionally, as in 2 of my cases, the removal of the submucous tumor is but a partial relief owing to the presence and subsequent growth of other nodules. In spite of its imperfections, however, this will always be the option of election in the great majority of these cases. They are the tumors that give rise to the most severe hemorrhages, and often to the most severe pain. The operation does not mutilate, and in the majority of cases gives permanent relief. Care must be taken to avoid cutting through the uterine wall, and it may be necessary to secure additional room by splitting the cervix on each side; otherwise the technique is simple, though the time necessarily consumed is apt to be very exhausting both to patient and to operator.

To prevent hemorrhage, and produce an atrophy of the fibroids as well as of the uterus, Tait in 1892 proposed to secure an artificial menopause by the removal of the tubes and ovaries. The safety and simplicity of the operation at once made it very attractive, so attractive that it was soon resorted to by all sorts of operators for all sorts of conditions. The reaction caused by its abuse, and the improvement in the technique of the more radical operations, have since pushed this into the background. I have performed it 3 times for the relief of fibromyomata. First in 1892, upon a Swedish woman forty years old, who complained of pain, irregular and profuse menstruation, dyspnea on exertion, nausea and headache. The blood count showed a profound anemia, and there was a systolic murmur at the apex of the heart. Surgically she made an excellent recovery, but ten days after the operation began to show signs of mental derangement, and a month later was committed to the Worcester Lunatic Hospital. Fourteen months later she was sent back to Sweden by the State authorities, and at that time was reported by the hospital physician to be "much improved and in a fair way to recover." Fortunately such an outcome is not common after removal of the uterus or its appendages, perhaps not more common than at the natural menopause, but common enough to be a wholesome check on its too universal adoption.

My second operation was in 1893, upon a nurse thirty-three years old, who, though dependent upon her own work for a livelihood, had been obliged to give up nursing on account of severe pain and hemorrhage at the menstrual periods. Her recovery was in every way satisfactory. She has been well, strong, and abundantly able to practise her profession ever since.

The third case was in 1899. The patient was forty years old, and had had a submucous fibroid removed seven years before at the Memorial Hospital. Since then she had been delivered of a living child, but for two years had been subject to severe and exhausting hemorrhages, until she was unable to leave her house or attend to her household duties, and was much of the time confined to her bed. The tumor seemed to be interstitial, and to occupy the fundus of the uterus. She was so extremely anemic, and so very weak, that I did not dare attempt hysterectomy. I was able to remove the tubes and ovaries easily and rapidly, without any loss of blood and without shock. The result was exceedingly satisfactory. She began to gain at once and gained rapidly in flesh and strength. In a few weeks her health was restored, and she has remained well.

The mortality from this operation in Tait's hands was, for the first 272 cases, 4½%. I think, however, that the mortality today ought not to be more than 1 or 2% at the most. Forty-one out of 50 of his cases that were followed up for six years were in perfect health, and in 14 of them the tumor had entirely disappeared. The occasional persistence of menstruation after the operation, and the knowledge that after all the cause of the trouble has been left behind, with the wonderful improvement in the technique and consequent safety of hysteromyomectomy, have had a tendency to cause tubo-ovariotomy to be wholly overlooked. In just such cases as the last one which I have recited, I believe it possesses very great advantages over the major operation. It can be done more rapidly, with less hemorrhage and less shock. Whenever these factors are of especial importance, and the appendages can be readily isolated, their removal alone is surely worth considering.

I have removed the uterus twice by the vaginal route when it has contained fibromyomata. In 1 case, which has already been mentioned, the operation followed an unsuccessful currettement, and it was undertaken in the expectation of finding adenocarcinoma of the body of the uterus. The fibroid was unexpected. The other case was undertaken for a supposed carcinomatous degeneration of the cervix in September last; three pedunculated, subperitoneal fibroids as large as walnuts were found attached about the fundus. She made a good recovery. Neither of these operations was undertaken primarily for the relief of the fibroids, and as the vaginal route has never been a favorite with me, I should never choose it for that purpose. It is applicable only for the removal of small tumors, and to my mind is not

as exact nor as satisfactory as the operation from above.

I have performed abdominal hysteromyomectomy 25 times, with 3 deaths; 2 of these were the fault of the technique of the operation. The first was that of a woman thirty-five years old, who died of septic peritonitis on the fifth day after the removal for a six-pound tumor. The operation was uncomplicated, and as no autopsy was permitted, I am wholly at loss to account for the fatal result. It could occur, however, only as the result of some error in my aseptic technique. The second occurred in the case of a woman fifty-three years old after the removal of a tumor about as large as a grape fruit; death resulted from general sepsis, which had its origin in an abscess of the abdominal wall. There was no peritoneal or intra-abdominal infection, but the pus burrowed in every direction in a fat abdominal wall, and resisted all the attempts which were made to control it. The occurrence of the abscess was in itself evidence of infection, and whether attributable to unclean suture material or not, was wholly preventable. I have always felt, too, that a better appreciation of the possible dangers would have prompted freer openings at the first discovery of the trouble, and perhaps averted the fatal result. In any event, I think the accident very unlikely to be repeated. The third death followed an operation done a week ago today, in which I removed an ovarian cyst of very large dimensions, completely filling the abdominal cavity, and at the same time a fibromyoma as large as a baseball. The patient was a feeble-minded woman of forty-six years, who was very anemic, but seemed otherwise in very fair condition. She had no vomiting, no pain, no tenderness, and no distention, but failed steadily, both mentally and physically, and died on the fourth day. No autopsy could be obtained. I have since learned that for years she had been unable to pass urine voluntarily, and had been dependent wholly upon a catheter, and that the condition of mind was not natural, but had been gradually coming on for several weeks. The urine was of very low specific gravity, but contained no albumin. I have no doubt that she died from the effect of chronic changes in the kidneys, and that she really was an unsuitable case for operation.

Homans places the mortality after hysteromyomectomy at from 3% to 10%. Doyen collected 147 cases, with a mortality of 4½%. Grieg Smith had 41 consecutively successful cases, and many American operators have reported an equally low percentage of fatal results. These, compared with the mortality of 30% in 539 German cases operated on prior to 1890, show how much has been accomplished by improved technique in depriving the operation of its dangers, and widening the field within which it may be safely advised. From my own experience, I think I approach the operation today with as little fear as five years ago I felt about the simple removal of uterine appendages. It is true that adhesions or other serious complications may be encountered most unexpectedly, but their very presence means a serious condition without operation, and is therefore, relatively considered, no objection. My own method of procedure is to cut the broad ligaments between two clamps down to the attachment of the round ligament, divide the peritoneum over the uterus from side to side at this level and strip it back, keeping close to the uterus until I can feel the uterine arteries between the peritoneal folds, secure these with silk ligatures, and then amputate the cervix. I cauterize the divided uterine canal, secure the ovarian arteries and then the vessels of the round ligament, and finally unite the anterior and posterior layers of the peritoneum by continuous suture from one side of the pelvis to the other. The most important steps are, I think, the absolute control of all hemorrhages about the stump so that there shall be no accumulation of clotted blood in the space between the stump of the cervix and its new peritoneal covering, and the treatment of the uterine canal. During the past year I have tried whenever possible to leave at least one ovary, on the theory that it diminishes the shock of the abruptly induced menopause, but I must confess that I have failed to observe any noticeable difference in the results.

Its progressively diminishing mortality and its completeness make this operation almost ideal in its results when performed for the relief of symptoms definitely due to the presence of a fibroid tumor. It would be ideal if it were not for the fact that it unsexes the patient, and produces a condition which, though compatible with health, is contrary to the provisions of nature. This objection is of especial force in the case of young women under thirty years of age, and has been very strongly set forth in a recent article by Dr. Richardson, of Boston. Fibromyomata are, like lipomata, encapsulated tumors showing no tendency to recur, and the ideal way to deal with them would be by enucleation, just as one deals with the fatty tumors on the surface of the body. In this way their attendant symptoms would be relieved, and at the same time the functions of the uterus and its appendages fully restored. The operation of myomectomy has been generally and successfully employed in pedunculated fibroids, when the pedicle has been small. Should we not extend it still further to those sessile and interstitial tumors which are capable of enucleation? On this subject, in his last edition, Grieg Smith says that "Schroeder identified himself with the practice of enucleation of fibroids, and obtained fair results, but other surgeons have not been prone to follow his example. Theoretically it is admissible, but practically its mortality is high."

The only danger beyond that incurred in any intra-pelvic operations is from hemorrhage, and the supposed difficulty of controlling the bleeding from the torn uterine muscle — simply a matter of technique; and every year is bringing additional testimony to the unsoundness of this objection. Kelly, of Johns Hopkins, has done much to extend the field of this operation, removing successfully in one case nine and in another twelve small uterine fibroids by enucleation. He says that "no more important advances can be made by the gynecologist in the immediate future than by extending the indications for myomectomy and narrowing the field of hysteromyomectomy." It is contraindicated in extreme anemia, when it is desirable to avoid a protracted operation, in the presence of extensive pelvic inflammation, and when the uterus is larger than a six months' pregnancy. Kelly says further that "with these few plain limitations, myomectomy within the proper age limit must always be the operation of election, and if hysteromyomectomy is performed, definite reasons must be given for selecting the radical instead of the conservative plan of treat-

ment." As it is applicable only to the smaller growths, it must be undertaken early, and there should be no delay, especially in the case of young women, after it has been made perfectly clear that the fibroid is steadily increasing in size.

I have performed myomectomy now only 6 times, but with most gratifying results. I have thus far selected only the most favorable cases for its trial, but there has been no difficulty at all in controlling the hemorrhage. This is a pretty small experience, but it has been sufficient to convince me that the method is applicable to many cases in which, a few years ago, I should not have thought it possible, and has given me confidence to believe that a steady improvement in technique will still further widen the field for its practice, and will give us, at least in a very large number of cases, a safe, non-mutilating method of dealing with uterine fibroids.

DYSBASIA INTERMITTENS ANGIOSCLEROTICA (INTERMITTENT LAMENESS OF VASCULAR ORIGIN).

BY JAMES J. PUTNAM, M.D., BOSTON.

AMONG the diseases which count as very rare, and so beyond the need of notice, largely, perhaps, because they are unfamiliar, the one which is indicated by the above title deserves a prominent place, and the careful attention of the general practitioner.

First described by Charcot, in 1854, on the basis of a case seen by him while acting as assistant to Bazan, and again, with greater fulness, in subsequent papers, this affection has been the subject of several clinical investigations in Germany, especially by Goldflam and by Erb,[1] but no case has, to my knowledge, been reported in this country.

The symptom complex is fairly simple and uniform, and the description given by Charcot holds today. In brief, the subjects of this disorder, who are usually persons past middle life, are seized, after walking a short distance, occupying perhaps five to ten minutes of time, with a helpless, cramp-like feeling in the legs, so severe as to render further progress impossible, though after a few moments' rest they can do their short stint again. It is not the severity of the pain so much as an actual incapacity for motion, an inhibition, accompanied sometimes with abnormal sensations in the feet, that hampers them.

So long as the patient is at rest and during the first few moments of exertion, everything seems to be in perfect order, but a careful physical examination almost always reveals, it is said, one or more of several co-ordinated signs, all of which point eventually to the same condition — a limitation of the arterial supply to the muscles. Thus one or more pedal arteries and even the popliteals may be found to be without pulsation, and as a consequence of this the foot may be cool and slightly pale, or red, or blue, according to circumstances. It is usually assumed that an arteriosclerosis, due to age, diabetes, gout or syphilis, or in part to alcohol or tobacco, is the fundamental lesion, but as the symptoms sometimes occur even when the arteries are apparently pervious (Erb) it has seemed necessary to invoke also the concurrence of arterial spasm of vasomotor origin, as an occasional or a partial cause of the ischemia. Prolonged and frequent exposure to wet and cold may tend strongly to induce a reflex habit of this sort.

In Charcot's first case a tumor was found compressing the artery in the popliteal space.

Even the larger arteries of the limb may be involved, and the disease may be identical with one from which horses suffer and which has been traced to changes in the abdominal aorta. The arms are never affected.

The characteristic intermittence during rest and recurrence during exertion is probably due to the fact that when the muscles are in use either an unusual supply of blood is needed or a vascular cramp is induced. Such is the *theory* of the pathology.

The disorder is chronic, and though of varying intensity does not tend spontaneously towards recovery. Occasionally, however, considerable improvement may be induced by measures tending to promote the circulation and to check the formation of a morbid habit. The chief means hitherto used with success are potassium iodide, moderate warmth, prolonged galvanism with the feet resting in tubs of warm water, cardiac tonics, and studious avoidance of exciting causes. Analogous measures which might be found useful are massage under the surface of warm water, as suggested by Jacobi for arteriosclerosis in general; local salt and carbonic acid baths, and Baumann's thyreoiodin, which has recently been found of service in other forms of sclerosis of the arteries and for rheumatic and gouty joints.

The suggestion of this arterial condition as a cause calls to mind other nutritional and painful affections of the feet associated with abnormal conditions of the circulation, such as Mitchell's erythromelalgia and kindred disorders, perforating ulcer and gangrene. In Erb's exhaustive paper these and other points are amply discussed.

Why it is that one person has one of these affections, a second person another, is as obscure as is the nature of the curious predispositions that underlie all the neuroses and yet keep them so distinct and make them run so true.

The case that I have to report bears out, in the main, the accuracy of the classical descriptions.

The patient, whom the courtesy of Dr. C. B. Porter enabled me to examine and to treat, is an active and able business man, a gentleman of seventy, with a remarkably good record for soundness of constitution, temperance of habits, and freedom from disease and exposure. He is without signs of nephritis, or diabetes, or cardiac or arterial disease, unless it be that an attack of sudden giddiness in which he was once precipitated forcibly and suddenly from his chair to the floor was due to a cerebral lesion of arterial origin. This is a possible explanation, especially since no aural disorder could be discovered to account for the seizure and since the acute attack was followed by prolonged dizziness, accentuated by movements of the head.

The symptoms of chief interest in the present connection first showed themselves two months before my examination, in the form of an intense sense of muscular fatigue in the legs, amounting almost to pain, which recurred every time the patient walked more than one-eighth of a mile, but quickly passed away with repose. Since then this condition has remained substantially unchanged. The pain is usually felt first in the calf, generally that of the left leg before that of

[1] Deutsch. Zeitschr. f. Nervenkrankh., vol. xiii.

the right, and then spreads upwards, omitting the knees and centring in the neighborhood of the hips. He then feels, although a man of great resolution, as if he must stop, and that if he went on his joints would grow rigid and he could not move. After a rest, or on waking in the morning, he feels perfectly fresh and "as well as ever in his life." Mental work causes no fatigue and he is singularly free from neurasthenic symptoms of all sorts.

On examination the patient was found in good general nutrition and with an appearance of vigorous health. The heart was normal in size and action and there was no unusual accentuation of the second aortic sound. Nothing abnormal was found in the abdomen by palpation. The calf of the left leg was slightly cooler than the right and perhaps a little less firm. The left knee-jerk was slightly less marked than the right. The toes of the left foot could not be flexed dorsad quite so far as those of the right, though in other respects their movements were perfectly normal. The movements at both ankles and knees were normal and equal. The galvanic irritability of the left peroneal nerve was slightly less than that of the right, but there was no certain difference as regards faradic irritability. An examination of the urine had already been made by Dr. Percy Musgrave at Dr. Porter's request and had shown absolutely normal conditions. Only two of the four pedal arteries could be felt to beat and one of these was scarcely recognizable.

The treatment indicated in the earlier part of the paper was at once instituted, and was carried out with thoroughness for many months. First, galvanism was carried through the length of the limb, with the foot resting in a tub of warm water. Then faradism was used in a similar manner, the indications laid down by Erb being followed so far as possible. Finally, a deep vessel was obtained so that the legs could be immersed up to the knees in water, and this was charged with solutions of artificial Nauheim salts of increasing strengths, the temperature of the water being at the same time lowered, day by day, or week by week. Good cutaneous reactions were secured, but the most that can be said for the success of the treatment is that the patient grew no worse during the time of its use.

Finally, after the bath treatment had been abandoned, the patient undertook to give himself morning and night a kneading of the calves, and, apparently through the influence of this treatment, he began soon to improve. Possibly the influence of the summer weather had also something to do with the favorable change, since it occurred in August, but up to that time warmth had not seemed to have any marked effect. The kneading has been persisted in ever since and the improvement has been progressive, so that at the present time the patient can walk one or even two miles without any considerable difficulty.

With regard to the pathology of the disease, I confess to feeling a little doubt as to whether the generalization of Erb and Charcot is wholly satisfactory. A careful examination of the patient's arterial circulation in the feet made before the treatment was begun showed that one of the posterior tibial arteries could be felt distinctly, the other very faintly, while the dorsal arteries could not be recognized. The same conditions obtain since the improvement, with no recognizable difference.

Erb examined the feet of a large number of patients not subjects of this disease, with reference to the circulation, and gives in his paper a table of the results obtained. Sometimes all four arteries could be felt to beat, sometimes three, two, only one or none, and although the inference which he draws is on the whole favorable to the pathological diagnosis which he is inclined to maintain, still it cannot be said that it is as yet established on a firm footing. The theory is an interesting one, but while the disease is clinically well marked, it must be admitted that our means of recognizing the underlying cause are still insufficient. A vascular spasm is perhaps the best explanation.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, December 14, 1900, the president, DR. C. B. PORTER, in the chair.

DR. FREDERICK C. SHATTUCK reported a case of

RUPTURE OF THE RIGHT ILIAC ARTERY.

CASE I. Patient, male, seventy-two years of age, born in Arlington, living in Boston, a druggist by occupation, entered the Massachusetts General Hospital December 10, 1900. His family history and habits are unimportant. His previous history without bearing on his present illness. There is no history of syphilis or of alcoholic excess.

Present illness. — Three weeks ago the patient had an attack of pain which he attributed to indigestion. Three days later he complained of a sharp pain in the abdomen accompanied by a good deal of gas in the intestines. He attributed this discomfort to constipation. Bowels were freely moved by drugs with some relief. The next day the pain was situated in the right iliac region, and he was not relieved by medicines prescribed by his physician. For a few days after this he was fairly comfortable. Eight days ago sudden increase in pain in the right iliac region referred somewhat to the right hip and flank. He had no vomiting; slight nausea, with some distention. No chills, fever or sweating. His bowels moved three days before entrance, with some pain, and this pain has persisted more or less to the present time.

Physical examination. — A well-developed man, of fair nourishment. Thoracic examination practically negative. He had a pulse of high tension, with a tortuous and thickened radial artery. His abdomen distended, symmetrical and tympanitic, the right half more resistant than the left, feeling like a bowel filled with gas. In the right iliac fossa there is an indistinct sausage-like mass where there is moderate tenderness; also slight tenderness between the right crest of the ileum and the costal margin. The rectal examination shows an enlarged prostate. No mass could be felt. Patient had a moderate secondary anemia. His pulse was 96, his temperature 99.4°, his respiration 24 at entrance. His urine was 1.023, with the slightest possible trace of albumin; no sugar. Sediment consisted of an occasional hyaline and fine granular cast. At 8.50 P. M., twenty-four hours after entrance, the patient was reported as pulseless, with marked pallor, restless, and covered with cold sweat. His respira-

tion was labored. He was actively stimulated without any reaction, and died within a half hour.

DR. WRIGHT: At the autopsy on this case a very extensive hemorrhage was found, not only in the retroperitoneal tissues of the right iliac fossa, but extending upward in these tissues as far as the upper pole of the right kidney and downward somewhat below the brim of the pelvis. The extravasated blood was large in amount, and had markedly elevated the peritoneum of the right iliac fossa, and also the cecum and ascending colon. Dissection showed very marked arteriosclerotic changes in the abdominal aorta and in the iliac arteries. In the wall of the right common iliac artery an irregular opening, about 5 or 6 millimetres in diameter, with ragged edges, was found. This opening in the wall of the vessel communicated with an irregular cavity immediately outside of the vessel which was perhaps 3 centimetres in greatest diameter. This cavity was lined with an indefinite layer of grayish to reddish tissue, resembling in appearance the substance of a gray-red thrombus. The surface of the lining of this cavity was irregular and somewhat trabeculated. External to the lining of this cavity the hemorrhagic infiltration of the tissue began. The tissues immediately surrounding the ruptured iliac artery were more resistant to the touch than normal, and there was evidence of an increase in the connective tissue of the region.

DR. PUTNAM: I remember a case which Dr. Fitz will recall, a patient I sent to the hospital many years ago who proved to have a dissecting aneurism — exactly what history I do not remember, but in such position as to press upon the anterior crural nerve roots and give rise to intense pain and hyperesthesia of that region. This pulsating mass was felt, and it was thought to be either aneurism or new growth. It proved to be a dissecting aneurism, as I suppose this substantially is.

DR. SHATTUCK: I wish to emphasize the fact that rupture had evidently taken place some weeks ago here, but the growth had been slight until the last, as it were. No pulsation could be felt over this lump.

DR. VICKERY: I saw the case on the day it entered. I had not followed it at all.

DR. SHATTUCK presented a case of

LEAD ENCEPHALOPATHY.

CASE II. Male, forty-four years of age, married, born in Ireland, living in Cambridge, a painter by occupation. His family history and his habits are unimportant. The important fact in his previous history is that since the age of twelve he has had to do with lead, either as a plumber or a painter. Latterly he has been puttying ships, using two-thirds white lead and one-third putty. At twenty-five he had lead colic in Glasgow, and in the United States in 1886 another attack Off and on during all of these years he has had occasional paroxysmal attacks of pain situated in the epigastrium.

Present illness. — Since June he has not been well. He has had more or less resistant constipation, pain in the abdomen of colicky character, relieved by pressure. He has felt rather weak and sometimes staggers in walking; has fallen. He stopped work five weeks ago, as his employers forbade him going on the painter's stage, because of the danger of falling. Has never fallen from the stage, although he has had frequent fits. These attacks in general started fifteen years ago, had a few fits ten years ago, again nine years and five years ago. For the past three years they have increased in frequency, averaging one per week. For the past five weeks he has had three or four attacks a day. They occur most often while he is in bed. He has never injured himself in one of these attacks. At times they represent petit mal, at others grand mal. In the attack he loses consciousness, froths at the mouth and has involuntary micturition.

Physical examination. — He has a suggestion of a lead line. He has no cardiac hypertrophy, no increased tension of pulse. His aortic second sound is accentuated, his reflexes are present, he has no paralysis of any type, his pain and muscle senses and co-ordination are all right. He has a slight hoarseness, a fine tremor, a moderate secondary anemia. Dr. Cheney reports the fundus normal. Dr. Walton reports all symptoms probably due to lead poisoning. His urine is 1.020, acid, slightest trace of albumin, no sugar, and contains a few hyaline casts. Dr. Wood reports much lead present in 2,000 cubic centimetres of urine.

He has had two kinds of fits — little fits like petit mal. He has had these while on the staging painting. He has also had attacks of grand mal with a cry, with general convulsion followed by unconsciousness. Five weeks ago his employers refused to let him go on the staging any more. I have not observed one of the attacks myself. I saw him once when a little contraction went over the mouth, a sort of flicker, but it did not amount to anything. It seems to be very clear that we have to do here with one of those rather unusual cases of lead encephalopathy, that these convulsive attacks are directly traceable to lead. A rather interesting feature of the case is that he never has had any paralysis. The symptoms have been colic and these convulsive attacks, which, coming on in a man of his age without syphilis, it seems reasonable to attribute to lead. He looks perfectly well. He had an attack of grand mal about an hour ago. The left ventricle is not hypertrophied; there is no arteriosclerosis, and he has not contracted kidney. The fundus of the eye is negative. There is a considerable amount of lead in the urine. He had been taking iodide of potash for some weeks before he came in. We have had two analyses of the urine by Dr. Wood and both showed lead after the administration of the iodide. He has no distinct blue line on the gums.

DR. WALTON: I had the good fortune to see one of these attacks, a typical epileptiform attack, that is, brief duration, a little drooling, unconsciousness, twisting to the left; on coming out he acted rather queerly, as if he did not know where he was or what he was doing. I speak of that because he has some features that resemble hysteria, as cases of lead encephalopathies are apt to do.

DR. F. C. SHATTUCK presented a case of

OSTEO-ARTHRITIS.

CASE III. Patient, age thirty-three, male, single, a roofer, born in Nova Scotia, living in Boston. His family history is unimportant. His habits are good with the exception of a slight tendency to alcoholic excess.

Previous history. — He had the ordinary children's diseases and fifteen years ago had an attack of acute articular rheumatism. Fourteen years ago he had typhoid fever. Ten years ago he had an attack of

gonorrhea, followed in six weeks by rheumatism less severe than his previous attack, lasting longer, but not preventing him from working. Nine years ago a second attack of gonorrhea, followed two months later by return of rheumatic symptoms. From 1890 to 1897 he was able to work, but noticed some stiffness in his back, especially early in the morning. People remarked that he did not bend his back. By November and December of 1897 he could not sneeze or expand his chest without pain; therefore, caught breath and smothered sneeze. In 1899 he was sent to Mexico for lung trouble, where he was said to have muscular rheumatism. Under bath treatment for pains in his chest he gained 8 pounds in three months.

Since November 15th to January 15th he has lost 20 pounds. His physical examination shows a poorly-nourished man, with a paralytic thorax, atrophic pectoralis and shoulder muscles, with complete anchylosis of the spine from the cervical through the lumbar region. Limitation of movement of shoulders from atrophy of muscles rather than from articular change. His chest expansion in the nipple line is 1 inch. He has no anesthesia or paresthesia. He has a moderate secondary anemia and his urine is that of an active hyperemia. No evidence of tuberculosis has ever been obtained. Since his entrance to the hospital he has shown improvement, characterized by greater freedom of movement of his arm and an increase in weight of 10 pounds.

An interesting question is how much his attacks of gonorrhea have to do with the condition. Dr. Goldthwait thinks they play a subordinate part. He has very little power in his deltoids. He cannot put his arms to his head in the manner usual to the normal man. The supraspinatus and intraspinatus are very much atrophied.

DR. JAMES J. PUTNAM demonstrated, from Dr. Shattuck's service, a case of

FRIEDREICH'S ATAXIA.

The patient, a boy of eleven years, had been well up to the age of five, when his present illness first showed itself, except that he had had an attack of scarlet fever. It is also noteworthy, as among possible exciting causes, that he had a severe fall about a month before his ataxia was first noticed, in which he injured the back of his head, at a point still marked by a scar. The case is a highly characteristic one in all respects. The motions of the legs in walking show the curious mixture of choreiform jerkiness, ataxic uncertainty and cerebellar reel, and muscular feebleness, which is so characteristic, and the motions of the hands suggest those of disseminated sclerosis. Nystagmus and tremor of the head are present and the speech shows faint traces of delayed and imperfect enunciation. The knee jerks are absent, while the Babinski reflex is present in a typical form. Sensory disorders are lacking. Even the characteristic extension of the great toe, seen as a part of the deformation of the foot which ends as talipes equinovarus, is present in so far as that when an attempt is made to extend all the toes it is the great toe alone that responds. Scoliosis is not present. No other cases have been noted in the family, but there are only two other children, still young.

Dr. Putnam demonstrated also some sections from a case of this disease of which the record was published by Dr. Everett Smith in 1885, and which he had studied and described for Dr. Smith's paper. They are of some interest as representing the first pathological study of this disease made in this country.

It is truly extraordinary to consider how many forms of ataxia, clinically so distinct, are due to lesions so like in position, and on the whole, in character, within the central nervous system, at least so far as the spinal cord is concerned, and the truth is that what we see is only a gross representation of the changes which actually occur. The essential tendency of the disease is not represented at all by the anatomical conditions and it may be that the subtle disorders of function which are really characteristic are still beyond our ken. Yet the symptom complex of the disease must have its physiological correlate.

I would like to call your attention to the way in which this boy walks with the legs wide apart and yet with a reel. Also, his legs twitch and his hands twitch almost in a way to suggest chorea or, again, so as to suggest disseminated sclerosis, and yet he does not have either one. His gait is wholly different from that of a locomotor ataxic patient, and his nystagmus does not belong to the symptomatology of tabes; yet in some respects the lesions recall those of that disease and some of the signs are similar. The only indication of any nutritional trouble with the foot, such as is common in Friedreich's disease, is this: When he tries to extend the toes he is able to extend the great toe and not the others. It is said that in the families in which this trouble has been prevalent the first sign sometimes noticed is that the great toe is kept extended. He has slight indication of equinus, also, in that the dorsal flexion of the foot is poor; otherwise the feet seem to be in good condition. Mentally he is in perfectly normal condition, intelligent and keen, and would be filling a first-rate place in the world if he could get about a little better. He is eleven years old and has had this trouble six years, the only obvious exciting causes being a fall and the scarlet fever. The knee jerks are absent on both sides. He has a slight Babinski reflex tendency of the toes, which goes with this affection of the lateral tracts.

DR. J. C. WARREN reported a case of

SPLENECTOMY.

CASE I. The case I have to report upon this evening is that of a patient, whom I saw with Dr. Torrey, of Beverly, a year ago, with an enlarged spleen. I shall not go into the details of his case, as I expect to report it later in full. His illness has existed for the last two years, the symptoms being attacks of vomiting, profuse diarrhea and occasional chills. During the past year the tumor has increased considerably in size, and he has lost weight and his condition is not so good. He is incapacitated from doing his work. The blood examination showed white corpuscles, 2,200; red corpuscles, 5,200,000; hemoglobin, 65%. The diagnosis was a slight degree of splenic anemia. The spleen was removed through a long incision along the outer border of the left rectus muscle, the opening being further enlarged by a shorter incision at right angles to it. After dividing the adhesions to the omentum, the tumor was seized by the right hand introduced between it and the diaphragm and turned over, thus exposing the vessels at the hilus. These being clamped, the tumor was removed. The patient made a slow recovery and later developed a pyrexia of several weeks' standing, which is now disappearing.

Dr. Torrey reports that he is doing well. An examination of the blood recently made by Dr. Lord shows a gradual return towards the normal. (Specimen and photograph of abdominal incision shown.)

DR. W. F. WHITNEY'S REPORT.

The spleen was in general of normal shape, but was deeply lobulated along the anterior surface, the lobules measuring 2 or 3 centimetres in depth. It was greatly enlarged, measuring, after removal, 21 centimetres in length by 16 in breadth, and 8 centimetres in thickness. The blood vessels at the hilus were increased in size. The consistency was moderately firm, the color, on section, of a uniform dark red. The trabeculæ were easily recognized and follicles occasionally to be distinguished.

Microscopic examination with low power showed that the trabeculæ were thickened, and the follicles were present, but were small and irregular in shape and diminished in number. The spleen pulp was striking on account of the small number of nuclei which were stained. On examination with a high power, it was found that the reticulum was very much thickened, leaving very small spaces between, in which was only an occasional spleen cell, leucocyte and a few blood corpuscles. The greater number of the nuclei seemed to belong to the reticulum and its lining. The blood vessels showed but little change.

The essential pathological feature lies in the thickening of the reticulum, decrease of the pulp cells, and small size and irregularity of the follicle.

DR. RICHARD CABOT: I should like to ask Dr. Warren what the diagnosis is.

DR. WARREN: Splenic anemia. I presume the etiology of these different forms of enlarged spleen is imperfectly understood. I have not gone into the subject sufficiently yet, and I look to the medical men for a diagnosis rather than to put one forward myself, but that was the diagnosis that was proposed at the time, and it seemed as fairly to meet this case as any other.

DR. RICHARD CABOT: I think the description of the spleen corresponds very closely with what Dr. Osler has described in connection with what he calls splenic anemia. Symptoms of enlarged spleen plus anemia without known cause seem to make up that disease. So far as I know, no good work has yet been done toward putting this disease on a substantial pathological basis.

DR. WARREN, in reply to a question, said that the patient lived in Beverly, was born in Scotland, and that there was nothing to show malarial taint in the case.

Dr. Warren presented 2 cases of operation for

LOOSE SEMILUNAR CARTILAGES.

CASE II. This patient was operated upon about two months ago for attacks of synovitis. The patient had been operated upon by Dr. Harrington in 1896, for a loose piece of cartilage which was removed at that time with great relief. On opening the joint by a vertical incision outside the patella no abnormality was observed in the outer semilunar cartilage, but as it appeared to be more movable than normal and it was in this region that the patient had complained of pain, the cartilage was excised. He now shows you a somewhat unduly movable joint, but he is much relieved by the operation.

CASE III. In this case, operated upon two weeks ago, the patient complained of pain at the back of the joint on the inside, with swelling of joint and frequent disability. A vertical incision exposed the inner cartilage, which was removed entire, showing at its posterior horn a movable flap of cartilage about the size of the little finger nail. The patient has made a rapid recovery, although the knee is still somewhat stiff. The deeper portions of the wound were united by a mattress wire suture, the skin by a buried wire suture and the wound was dressed with silver foil.

PLASTIC OPERATION FOR RODENT ULCER.

CASE IV. Dr. Warren showed a patient, sixty-eight years of age, who had suffered from rodent ulcer for eighteen years. The right side of his face was replaced by cicatricial and epithelial tissue so blended as to make any palliative operation out of the question. The right orbit was invaded by the malignant growth. The operation consisted in an excision of the right half of the face, including the contents of the orbit. The eyebrow and a portion of the upper lip were allowed to remain. The space thus denuded was covered by a flap taken from the bald space on his head. This flap reached to the median line of his nose. During convalescence the patient had an attack of erysipelas. He has now been well a year and has no recurrence.

Dr. Warren showed the case to illustrate how this form of cancer remained localized for great lengths of time, and he also called attention to the necessity of performing a major operation in many of these cases and the hope that it held out for a permanent cure, even in cases which physicians were inclined to regard as too far advanced for further treatment.

(To be continued.)

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

IMPETIGO, CLINICALLY AND BACTERIOLOGICALLY.

SABOURAUD'S[1] studies are comprised in several papers or divisions. In the first paper he discusses the clinical aspect of the question, pointing out that the clinical varieties of impetigo have not been kept apart by those who have studied the bacteriology. He divides the subject into the impetigo contagiosa of Tilbury Fox, and the follicular impetigo of Bockhart. The impetigo contagiosa of Tilbury Fox begins as an erythematous patch which rapidly becomes a vesicle containing clear fluid. The fluid may or may not become purulent, and a crust is formed quickly, which may increase by the formation of new vesicles about the periphery. The impetigo of Bockhart, on the other hand, is characterized by rounded pustules filled with yellow pus with a hair in the centre. The affection is apt to appear very suddenly and to recur, and to leave behind it furuncles and follicular lesions. Bockhart's impetigo may be and frequently is added to the impetigo contagiosa of Tilbury Fox as a complication. The circular and gyrate impetigos of the face are allied to the impetigo contagiosa of Tilbury Fox,

[1] Ann. de derm. et de syph., January, March, April, 1900.

as is ecthyma also. The question is raised whether a variety of lesions of follicular position, pustular, traumatic and so-called professional forms of dermatitis of the extremities, as well as forms of eczema and lichenification that follow or complicate Bockhart's impetigo, are not due to the same cause.

In his second paper Sabouraud discusses the bacteriology of these forms. He thinks that the chief fault of investigators has been to study the lesions at too late a stage, when there has been a secondary infection, and the second fault that of using solid culture media for the impetigo contagiosa of Tilbury Fox. Liquid media should be used, as the streptococcus is very hard to recognize when associated with other microbes in solid media. His method is to take a drop of serum from beneath the crust by means of a pipette, and to add to this a liquid medium, ascitic serum and bouillon. By this means he has cultivated the streptococcus, and maintains that this organism is present alone in the early stages of the affection, and that the staphylococci do not make their appearance until the purulent stage is reached. As long as the culture of the streptococcus remains pure, the vesicle of impetigo contagiosa is transparent. In the case of ecthyma, there is the same streptococcus and this term designates the same affection as impetigo contagiosa of Tilbury Fox, when seated upon the surface of the body and taking on an ulcerated form. Impetigo contagiosa of Tilbury Fox is readily invaded by staphylococci and then passes into the stage of suppuration.

Sabouraud declares further that whenever an active effusion of serum quickly solidifying into bright yellow crusts appears in any cutaneous affection whatsoever. there is an infection with the streptococcus, — an impetigo contagiosa complicating a seborrheic eczema, a dyshidrosis, a prurigo of Hebra, — in short, any skin affection.

Sabouraud then takes up the second form of impetigo, the follicular impetigo of Bockhart. This is seen in either a discrete or confluent form, chiefly in the regions where hairs are present, as on the scalp of the infant or the moustache and beard of man. The lesions may be large and small on the same subject. They may appear without known exciting cause, or secondarily to a traumatism or a pre-existent microbic infection. Often they are due to a chemical agent, such as turpentine; and the pustular eruptions from medicaments, such as mercurial ointment and croton oil, oil of cade, etc., are included by Sabouraud in this class. All of these impetiginous eruptions he regards as caused by the staphylococcus aureus, the creator of this whole group of affections, of which the type is the impetigo of Bockhart. He goes even further and declares that the acne pilaris of the adult and acne necrotica are impetigos of Bockhart added to a seborrheic infection, as well as the septic inflammatory affections about the nails. When the two forms of impetigo are allied and become chronic they give rise to the appearances usually designated as chronic eczema.

PROTOZOIC DERMATITIS.

Montgomery,[2] of San Francisco, contributes a new case of this interesting affection. The patient, a man of twenty-one, entered the hospital in San Francisco suffering apparently from pulmonary consumption.

[2] British Journal of Dermatology, October, 1900.

He was born in Germany of German parents and came to San Francisco when three years of age, and had remained in this country ever since. For the past two years he had been a telegraph operator and in this capacity had worked in various places along the railway in California. About seven or eight months previous to entering the hospital he had developed a cough. The skin lesions were just beginning to develop when he entered the hospital, the first one to show itself being over the right eye. The cough was growing steadily worse, he had night sweats, and had lost considerable weight. He presented the general aspect of a consumptive. Examination of the chest showed sharp vesicular breathing at the left apex, and bronchial breathing and crepitant râles at right apex, but no tubercle bacilli could be found in the sputum, which was considerable in amount. A month after entering the hospital, the signs in the lungs had increased, the spleen was enlarged, and one of the cervical lymphatic glands was enlarged. The skin lesions, which were situated on the head and extremities, began as dark rounded nodules, with suppuration at their summits, which soon became ulcerated. Some of these nodules were quite large, projecting well out from the skin, and were constricted at their base, resembling somewhat the fungous tumors of mycosis fungoides and iodide and bromide poisoning.

One of the nodules was cut out and showed a granulation tissue with giant cells, and numerous small abscesses scattered through it. A micro-organism similar to that found by Rixford and Gilchrist was found in the granulation tissue and in the giant cells, but was very rarely present in the abscesses. It commonly possessed a clear double-contoured capsule, which enclosed a sphere of protoplasm having a dark periphery and a lighter centre. In another form the capsule enclosed large numbers of spherules due undoubtedly to spore formation. In some cases the capsule was broken and the spores could be seen escaping from it. Inoculation of a rabbit proved negative. A mould was cultivated on glycerin agar, but was not further studied.

The patient died two months after his admission to the hospital, and at the autopsy several large abscesses were found, over the frontal bone and above the clavicle. The latter was found to communicate with the right pleural cavity and with a large abscess occupying the upper part of the right lung. There were several other abscesses in the lung, and an immense abscess of the liver. In all of these abscesses the protozoic organisms found in the skin were present.

Wernicke, of Buenos Ayres, reported the first case of this disease in 1890, and was followed by Rixford with 2 cases, with pathological examination by Gilchrist, in 1895. In all these cases fungoid lesions were present on the skin, which contained these protozoic bodies. The next case was in 1897 by Posadas, of Buenos Ayres. In 1900 Ophüls and Moffitt published a case where the fungous tumors of the skin were not present, but the abscess formation was the same, and from this they cultivated a fungus which caused the disease when inoculated into guinea pigs.

Five of the reported cases have been in men. Three of the cases were Portuguese from the Azores, and four of them had lived in California for a longer or shorter time, so that Montgomery regards California as the habitat of the parasite. Montgomery's case

had lived for a long time in the San Joaquin Valley in California, where Rixford's cases had also lived, while Ophüls and Moffitt's case had lived in a valley running parallel. A fact of possible importance in Montgomery's case was that the patient had frequently used, while on the railroad, "car waste" as a bedding, and when he first began to cough was living in Los Baños, near which there is a spring feared by sheep-herders, on account of its alleged property of causing the ewes to drop their lambs. All of the reported cases of this affection have steadily progressed to a fatal termination.

(To be continued.)

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-FIFTH ANNUAL MEETING, HELD IN ALBANY, JANUARY 29, 30 AND 31, 1901.

(Concluded from No. 7, p. 166.)

THE TONOMETER AND ITS VALUE IN DETERMINING ARTERIAL TENSION.

DR. HENRY L. K. SHAW, of Albany, exhibited and described this instrument.

PLEUROPERICARDIAL AND DIAPHRAGMATIC ADHESIONS.

DR. D. H. GOODWILLIE, of New York, called attention in this paper to the important part played by interpleural pathological conditions. If they were not recognized early and appropriate treatment instituted, the pleuræ would become thickened, and permanent adhesions would form between the pericardium, diaphragm and pleura. The latter were difficult of recognition and serious in their results. The author entered a strong plea for more scientific and systematic training of physicians in auscultation, particularly in the matter of a good working knowledge of the laws of acoustics as applied to the human chest. The position that he took concerning pleuropericardial adhesions had been sustained both by clinical and post-mortem experience, and the same conditions had been found by him in cattle while engaged with a committee of the United States Government in investigating bovine pleuropneumonia. The speaker exhibited beautifully made wax models illustrative of these lesions.

DIFFERENTIAL DIAGNOSIS IN DISEASES OF THE SPINAL CORD.

DR. EDWARD D. FISHER, of New York, discussed this subject. He said that the anterior horns control the nutrition and action of the muscular system, and that any destruction of this region must lead to paralysis and wasting of the muscles affected. As the lateral tracts were essentially motor, disease of those tracts causes only paralysis without wasting. He proposed to classify the diseases under discussion as follows: (1) Diseases of the anterior horns, as poliomyelitis, acute and chronic, progressive muscular atrophy, and hemorrhages into the cord substance, all of which were specially characterized by paralysis with muscular atrophy; (2) diseases of the lateral or crossed pyramidal tracts, as seen in lateral sclerosis following myelitis, injuries, etc., in which there is paralysis without atrophy; (3) diseases of the posterior columns or tracts which, being only sensory in function, give sensory disturbance without paralysis or atrophy, as in tabes.

PUS IN THE PERITONEAL CAVITY.

DR. ROBERT T. MORRIS, of New York, the author of this paper, endeavored to show how much power the peritoneal cavity has in dealing with pus by a process of leucocytosis.

THE INDICATIONS FOR AND LIMITATIONS OF SPINAL COCAINIZATION IN SURGERY.

DR. GEORGE R. FOWLER, of Brooklyn, had prepared a paper on this subject, but, owing to the lateness of the hour, contented himself with presenting a few of the main points.

MASTURBATIONAL NEUROSES.

DR. WILLIAM C. KRAUSS, of Buffalo, gave very briefly his experience with this class of cases.

SECOND DAY.

DR. JOHN H. DOUGHTY, of Matteawan, presented a paper on

APPENDICITIS,

but for lack of time was prevented from reaching the main conclusions.

TENDINITIS AND TENOSYNOVITIS PROLIFERA CALCAREA.

DR. CARL BECK, of New York, reported this case, and presented skiagraphs.

THE TREATMENT OF PUERPERAL FEVER.

DR. HERMAN J. BOLDT, of New York, read this paper. Under the term "puerperal fever" he included acute bacteriemia, chronic bacteriemia, sapremia and local septic infection. Acute bacteriemia he defined to be a blood disease caused by parasitic micro-organisms invading the circulatory system from some primary seat of infection. Chronic bacteriemia was likewise an invasion of the streptococcus pyogenes, but disseminated from an infected thrombus. Sapremia was the result of the absorption of decomposition products in the genital tract — toxins and saprophytes. Acute bacteriemia, he said, was the most serious, causing a mortality of nearly 98%. The prognosis depended upon our ability to remove the putrefactive factors soon after the onset of fever, and before other infection had taken place. In the treatment of puerperal fever one must first enjoin perfect rest, and search for the seat of infection. If the latter were then found to be located about the vagina or vulva, the part should be wiped with absorbent cotton moistened with some antiseptic solution that is not caustic, and then dusted with aristol or some similar antiseptic powder. Where the seat of infection was covered with a grayish-white membrane the case was more serious than where there was simply a free pus formation. If no infection could be found about the entrance to the genital tract, the vaginal mucous membrane and the vaginal portion of the cervix should be minutely inspected, care being taken not to reopen small wounds. If the examination were still negative, and the patient's condition were good, the phy-

sician should wait and watch, remembering that the retained placental tissue was often soon expelled spontaneously. If, however, her condition were not good, the interior of the uterus should be examined under strict antiseptic precautions. He was strongly opposed to the use of the curette in cases of septic endometritis. An intra-uterine douche should be given both before and after the intra-uterine manipulation, and ordinarily it was better not to repeat this douche. The exception to this rule was found in those cases in which the temperature remained high and there was a free purulent discharge from the uterus. He had seen no benefit from the insertion of gauze in the uterus for the sole purpose of securing drainage. If the infection were localized in the pelvic cellular tissue or the pelvic peritoneum, the ice-coil and inunctions of Credé's ointment of metallic silver would be found beneficial. He had not found treatment with antistreptococcus serum of any value.

THE EARLY DIAGNOSIS OF INSANITY.

DR. CARLOS F. MACDONALD read this paper, pointing out the special importance of this subject to the family physician. He said there was no disease which was so likely to be mismanaged in its initial stage as insanity. The symptoms might be summarized as a prolonged departure from the methods of thinking, feeling and acting which were usual to the individual when in mental health. The person must be compared with his own normal mental status. Prominent prodromata of mental disease were morbid emotional manifestations and alterations in the mental characteristics of the individual, and they should always be looked upon as danger signals. Insanity was rarely due to a single predisposing or exciting cause. Many cases of acute insanity could be averted if the prodromata were promptly recognized and treated. Doubtless many minds of the highest order had been irreparably damaged for want of appropriate treatment in the initial stage.

THE RÔLE OF THE INFECTIONS IN WOMEN.

DR. CHARLES A. L. REED, of Cincinnati, O., read a paper with this title, in which he insisted that the essential antecedent condition of an inflammation of any part of the genital tract was an infection. The infection was controlled by the following laws: (1) The epithelial surface of the genital tract when intact is a sufficient barrier to the entrance of micro-organisms; (2) the normal cervix and its secretions are an efficient barrier against the invasion of the uterus by pathogenic bacteria capable of maintaining a habitat in the vagina; (3) the vagina possesses a certain degree of self-disinfection; (4) certain pathogenic bacteria, such as the gonococcus and the Klebs-Löffler bacillus, find here favorable conditions for their growth; (5) pathogenic bacteria, innocuously present in the genital tract, may become virulent when introduced into the underlying structures by an abrasion of the epithelium; (6) pathogenic bacteria when introduced into previously normal tissue immediately set up inflammation; (7) pathogenic bacteria, if not overcome by the leucocytes, may enter the lymphatics, giving rise to metastases and septicemia.

THE PRESIDENT'S ADDRESS. — HERNIA.

DR. A. M. PHELPS, of New York, presented this address, which was a historical sketch of the methods of treating hernia from the Christian era down to the beginning of the twentieth century. His own operation for the radical cure of inguinal hernia had been first published in 1894. The following are claimed to be the points of originality in this operation: (1) The reproduction of large masses of inflammatory material to restore the abdominal parietes, and the introduction of a fine silver-wire filigree throughout the entire inguinal canal, over the transversalis fascia, thus adding to the strength of the weakened abdominal parietes and preventing the new material from stretching; (2) cutting off the hernial sac and, as in any abdominal operation, stitching up the peritoneum and transversalis fascia with a continuous suture of fine silver wire; (3) the use of fine silver wire in a continuous suture.

A HAIR CAST OF THE STOMACH; ITS SUCCESSFUL REMOVAL BY LAPAROTOMY.

DR. NATHAN JACOBSON, of Syracuse, reported this case. The patient was a girl of eleven years, who had presented certain gastric symptoms and finally a nodulated tumor, the lower border of which was on a line with the umbilicus. On abdominal section it had been found that the tumor was within the stomach, and on incising this organ, a kidney-shaped tumor weighing 15 ounces, and presenting a perfect cast of the stomach when in a state of contraction, had been removed. This tumor was found to be composed of hair. The girl admitted after the operation that she had been in the habit for many years of biting off the ends of her hair and swallowing the fragments. All her symptoms had been completely relieved by the operation.

SURGERY OF THE SPLEEN.

DR. J. COLLINS WARREN, of Boston, presented an exhaustive paper on this subject, and reported 4 cases. He gave a long list of diseased conditions for which splenectomy is indicated and stated that with the exception of such grave constitutional disorders as splenic anemia and leukemia and amyloid degeneration the operation of splenectomy could not be said to be contraindicated.

DR. ALEXANDER VAN DER VEER, of Albany, gave some of his experience in the surgery of the spleen, and expressed the wish that it might not be his lot to meet with many cases in this category.

DR. ROBERT T. MORRIS, of New York, called attention to the chief dangers of operations upon the spleen, that is, hemorrhage and shock, and described the best methods of avoiding or minimizing them.

INGUINAL HERNIA.

DR. MELVILLE RICKETTS, of Cincinnati, O., presented in this paper a statistical study of the various methods of so-called radical cure of hernia, and extolled the wire mattress suture used by Phelps.

DR. JOHN A. WYETH, of New York, said that he considered as essential features of a method for the radical cure of inguinal hernia the entire obliteration of the sac and securing the proliferation of newly formed and fibrillated connective tissue. This fibrillation could hardly be secured under six weeks; hence he insisted that the patient should remain quietly on the back for this length of time. The obliteration of the sac he thought was best secured by a modification of Macewen's method.

GASTROJEJUNOSTOMY IN GASTRECTASIS.

DR. A. H. CORDIER, of Kansas City, described this operation, and pointed out its value as a drainage measure.

TOXIN OF THE COLON BACILLUS.

DR. VICTOR C. VAUGHN, of Ann Arbor, Mich., discussed this subject. He said that our present knowledge was lacking in proof that any ptomaine was sufficiently powerful to produce the characteristic symptoms of the disease which had been caused by the germs which produced the ptomaine. Some disease germs, and notably the colon bacillus, had cell walls which were well-nigh impermeable. As a consequence, prolonged exposure to high temperature was not sufficient to set free the toxin contained within the cell wall. By a process of artificial digestion he had finally succeeded in extracting the toxin and exhibited some of it.

THE SO-CALLED TRAUMATIC NEUROSIS.

DR. HAROLD N. MOYER, of Chicago, endeavored in this communication to combat the notion that there is any such thing as a traumatic neurosis, and insisted that such a vague nomenclature was harmful.

THIRD DAY.

The following officers were elected: President, Dr. Henry L. Elsner, Syracuse; Vice President, Dr. Louis N. Lanehart, Hempstead; Secretary, Dr. F. C. Curtis, Albany; Treasurer, Dr. O. D. Ball, Albany.

Recent Literature.

Psychopathia Sexualis, with Especial Reference to Antipathic Sexual Instinct. A Medico-Forensic Study. By R. VON KRAFFT-EBING. The only authorized English translation of the tenth German edition. Pp. xv, 585. Chicago: W. T. Keener & Co. 1900.

If we mistake not, a translation of one of the previous editions of this work was published a few years ago. The present translation is well done and the book itself is extremely well brought out. The original is too well known to require any extended discussion here. It is probably the most complete and scientific study of the aberrations of the sexual instinct that has yet appeared and is based upon the extensive clinical experience of one of the leading alienists of Austria. We miss in this last edition some of the curious letters from patients, giving detailed explanations of their perverse feeling in the true neurasthenic style, flavored with the true German *Schwärmerei* and well stocked with familiar quotations, even though they did detract a little from the scientific value of the work, by causing us to suspect that the explanations were imagined after the fact and were not true depictions of the original state of the patient's mind. Krafft-Ebing's work will doubtless remain the standard authority upon this subject for many years to come, and it merits the careful study of all physicians who have to do with the degenerate, whether these persons be classed as neurotic, insane or criminal. The study of the abnormalities of that mighty instinct which is the basis upon which social advancement is developed, disgusting as those abnormalities sometimes are, is of profound importance in the consideration of many of the problems which physicians who have much to do with the degenerate so often have to meet; and to ignore such study savors more of Pharisaism than of virtue. Nevertheless, the number of cases of sexual perversion actually met with in practice is hardly large enough to create a legitimate demand for ten editions in Germany, or perhaps for a second edition in this country, even though the publishers sanctimoniously announce that it is to be sold only to the medical and legal professions. Valuable as the work is for the true student, we fear that the wide demand for it comes from the sexual neurasthenics and the collectors of pornographic literature. This seems the more probable when we remember how rarely, in the last twenty-five years, any publisher has been willing to take the risk of publishing a translation of any one of the great modern treatises on the whole broad subject of mental disease. If the demand for translations of such works is not great enough in this country to warrant their publication, is it likely that the legitimate demand for a monograph on one limited portion of the subject would be so great as to warrant two editions?

A Manual of Personal Hygiene. Edited by WALTER L. PYLE, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia, etc. Contributors: J. W. COURTNEY, M.D., GEORGE HOWARD FOX, M.D., E. FLETCHER INGALS, M.D., WALTER L. PYLE, M.D., B. ALEXANDER RANDALL, M.D., G. N. STEWART, M.D. (Edin.), CHARLES G. STOCKTON, M.D. Illustrated. Pp. 344. Philadelphia: W. B. Saunders & Co. 1900.

The professed object of this book is to set forth the best means of developing and maintaining physical and mental vigor. To accomplish this end seven men, chosen for their special knowledge, have written on the following topics: Hygiene of the digestive apparatus; of the skin and its appendages; of the vocal and respiratory apparatus; of the ear; of the eye; of the brain and nervous system, and physical exercise. The work has been excellently done; there is no undue repetition and the writers have succeeded unusually well in presenting facts of practical significance based on sound knowledge. The apportionment of space to the various articles is perhaps open to criticism; for example, the eye has 104 pages, the nervous system 39 and physical exercise 22. Important as the eye and its care may be, it is certainly unjust to other subjects to give it nearly a third of the entire book. It should be made more concise in future editions and various tests for defective vision might with much propriety be altogether omitted. One of the best sections of the book is Dr. Courtney's discussion of the hygiene of the nervous system. It is to be regretted that he was not allowed space more in accordance with the importance of his subject. In spite of this limitation he has presented a series of very practical facts in a highly succinct and lucid manner and in so entertaining a form that few will take up his chapter without reading it through to the end. We do not recall a better brief discussion of the vital questions underlying the health and disease of the nervous system. The title of this section is, however, somewhat unfortunate in its wording. Why is not "Hygiene

of the Nervous System" alone sufficient? The addition of the word "brain" appears unnecessary. The book, in general, is undoubtedly a successful venture and should find a wide circle of readers among those for whom it is primarily intended. It is sufficiently well bound and printed and has a considerable number of illustrations which are of value. An excellent table of contents and an index make ready reference possible.

Rudiments of Modern Medical Electricity. Arranged in the Form of Questions and Answers Prepared Especially for Students of Medicine. By S. H. MORRELL, M.D. Pp. 165, with 37 illustrations. New York: Edward R. Pelton. 1900.

The rudiments of modern medical electricity as laid down by the author in this volume do not require the number of pages he employs. They could be summed up in seven words: "Consult my larger work on the subject." The present catechism is made up of questions and answers of a very indefinite sort from which the beginner could learn nothing about the use of electricity. An example may suffice:

"Name an important class of pains that are often best and most curatively treated with selected electric current actions?

"Headaches.

"If the headache is a symptom of any disease that is amenable to treatment by any form of electric current, will the prognosis be a radical cure?

"Yes, if correct methods are employed.

"If the headache is caused by some disease that electricity does not affect, may it abate or remove this symptom without reference to the etiology?

"Yes."

When we add that the writer expresses a firm faith that electricity is a marvellous therapeutic agent in the treatment of bronchitis, Bright's disease, tuberculosis, diabetes and the majority of ills that flesh is heir to, and that he gravely informs us that the Edison street current exceeds the medical unit of the constant galvanic current ten thousand times, we think it needless to waste more time upon a book so wholly worthless.

Introduction to the Study of Medicine. By G. H. ROGER, Professor Extraordinary in the Faculty of Medicine of Paris. Authorized translation by M. S. GABRIEL, M.D., with additions by the author. New York: D. Appleton & Co. 1901.

This book is a reproduction of the course of lectures delivered by the author in 1897–1898 at the University of Paris. The author's object in his teaching and in these pages was to lessen as much as possible the difficulties met with in the study of the medical sciences. This course of lectures was established by the Paris Faculty of Medicine with the view of relieving beginners of much useless embarrassment. The author has had a wide experience both with experimental pathology and with clinical medicine. The translator states that "to read this masterful résumé is to undertake a fascinating journey into those regions of medicine where the most important developments have recently been realized."

The volume, which is an octavo of 545 pages, divided into 24 chapters, with a good general index, will be found a valuable one by the practitioner as well as by the student. The arrangement of the subjects is a judicious one and the author's style is agreeable. The translation seems to be well done. The make-up of the book reflects the usual good work of its publishers.

The Tale of a Field Hospital. By FREDERICK TREVES. With 14 illustrations from original photographs. London, Paris, New York and Melbourne: Cassell and Company, Ltd. 1900.

This small volume of 109 pages is a record of some of the incidents during three months with the Ladysmith Relief Column in South Africa. Mr. Treves was with a field hospital during this time and had ample opportunity for observation, the results of which he has set down in this series of short sketches. The incidents are told in a delightfully entertaining manner and the author has succeeded in presenting to his readers a graphic description of the events behind the fighting line and in the hospital. As might be expected, the pictures are gruesome and often unromantic, savoring little of the glory of war, but as Mr. Treves says: "The account, such as it is, is true." We are duly impressed with the excellent style of the author and the charm of this entire collection of realistic sketches. The book is beautifully bound in flexible covers and equally well printed on exceptionally good paper. The illustrations are reproductions of photographs and add to the general interest of the text.

The Medical Examination for Life Insurance and its Associated Clinical Methods. With chapters on the Insurance of Substandard Lives and Accident Insurance. By CHARLES LYMAN GREENE, M.D., Clinical Professor of Medicine and Physical Diagnosis in the University of Minnesota. With 99 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

This book aims (1) to explain the duties of the physician to himself and his insurance company, and (2) to supply necessary information as to how the examination for life insurance should be made from a medical point of view. The numerous minor questions likely to arise, and possibly to prove sources of misunderstanding or friction between the home office and examiner, or disturb his relations with the agent or the applicant, have not been overlooked. Occupation, heredity, conspiracies to defraud have each a separate chapter devoted to them.

An octavo of 426 pages, with index, this book will be found useful by those dealing with or expecting to deal with the medical aspect of life insurance, and some of its chapters will prove interesting to the general medical reader.

Cancer of the Uterus. Its Pathology, Symptomatology, Diagnosis and Treatment; also the Pathology of Diseases of the Endometrium. By THOMAS STEPHEN CULLEN, M.B. (Toronto), Associate Professor of Gynecology in the Johns Hopkins University. With 11 lithographic plates and over 300 colored and black illlustrations in the text. By MAX BRODEL and HERMANN BECKER. New York: D. Appleton & Co. 1900.

This beautifully printed and illustrated monograph forms a volume of nearly 700 large pages. It covers the whole subject of malignant disease of the uterus in the most thorough manner, both from the pathological, diagnostic and operative points of view.

The illustrations are as beautiful and as thoroughly practical as any that we have seen. A work of this class is an addition of real value to medical literature.

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SOME CURIOSITIES OF LEGISLATIVE LITERATURE.

A COLLATION of the bills presented to almost any of our State legislatures for proposed legislation in almost any given field would probably reward the collector in one way or another for his trouble — especially should he possess a humorous sense of the possible tendencies of the human mind in a free, independent and enlightened democratic social organization.

This is perhaps as well illustrated by the suggestions for legislative enactment in regard to matters pertaining directly or indirectly to the public health as by any other. At least this is a favorite field for the well-meaning enthusiast, the chronic agitator, the self seeker under the guise of devotion to the public weal.

It has been our habit to take some note from year to year of bills of this class as presented to the Massachusetts Legislature. The product of this year merits at least passing attention.

We find a bill entitled, "An Act to Establish a Reformatory and Protect the Public Health of the People." It consists of the following sections:

1. A part of the city shall be fenced off for the inmates of houses of prostitution and all other persons of like character for reformation.

2. That a hospital shall be established for their treatment by reputable physicians.

3. That an undenominational church shall be established for their reformation.

4. That they shall wear an insignia, which shall not be concealed, indicating that reformation is not complete until one year has elapsed from the time of the commencing to reform to its completion, when it may be laid aside and the person is permitted to depart.

5. The persons shall pay a suitable sum for rental, clothes, maintenance and the real estate used for this purpose, and these persons shall pay double the assessed value to the State monthly.

An accompanying bill entitled, "An Act to Protect Indigent Women and those Wronged from Great Injury and Suffering," proposes that

1. An undenominational hospital shall be established for treatment.

2. Any person requesting, advertising, aiding or abetting the crime of malpractice or criminal abortion with criminal intent shall be punished as the principal in a fatal case of malpractice or criminal abortion.

5. The poor married woman and the one wronged may be received and allowed to depart with their secrets kept inviolate.

There is a bill designed "to Prevent Premature Encoffinment, Burial or Cremation," which provides as follows:

1. That no person shall place the body of any human being in a coffin, casket, or other receptacle by which air or light is excluded, or by which free movement is prevented, or bury or cremate such body except after certificate of death as hereinafter provided.

2. Whenever any person in any city or town apparently deceases, the board of health of said city or town or the selectmen of such town, if no board of health exists, shall within six hours of such event being known be informed of such apparent death by any person or persons having the body in charge.

3. As soon as is possible after such information the board of health, or said selectmen of such city or town in which such apparent death occurred, shall cause an examination of such body to be made to determine whether death is real or only apparent, and certification of the fact of death shall be not made until the following facts are established by actual tests, wherever possible, namely: (1) Heart signs entirely absent, the test being by the stethoscope; (2) respiratory sounds entirely absent; (3) temperature of the mouth same as that of surrounding air; (4) a bright needle plunged into the body of the biceps muscle, left there, shows no sign of oxidation; (5) intermittent shocks of electricity at different tensions passed by needles into various muscles and groups of muscles give no indication whatever of irritability; (6) fillet test applied to veins of the arm causes no filling of veins on distal side of fillet; (7) opening of vein shows the blood to have undergone coagulation; (8) subcutaneous injection of ammonia causes a dirty brown stain indicative of dissolution; (9) careful movements of the lower jaw and of lower extremities and of occipitofrontalis indicate the presence of rigor mortis; (10) scarlet line (diaphanous test) is absent; (11) decomposition has set in.

And *provided, further*, that, if there is an absence of any of the signs of death except decomposition, all known means of resuscitation shall be tried while such proofs are absent.

4. The test provided for in Section 3 shall be made by not less than two doctors of medicine in person, who shall have lawfully received the degree of M.D., one of whom may be a member of the board of health.

5. No provision of this act shall be construed to prevent any means being used by any person to restore life to the supposed dead body.

6. Every city and town shall provide suitable rooms for the carrying out of the provisions of this act, wherein tests may be made. Said rooms shall contain conveniences for resuscitation of bodies and for funeral services: *provided, however*, that the provisions of this act shall preferably be carried out in the domicile of the supposed deceased, his relatives and friends; but in no case shall any provision of this act be omitted. The expense of said rooms shall be included in the annual expenses of the town and provided

for in the annual appropriation of money for town purposes.

7. The fee for the services provided for in Section 3 shall be fair and reasonable and shall be fixed by the board of health and be at the expense of the town.

9. All laws or parts of laws inconsistent with this act are hereby repealed in so far as they apply to this act, but no farther.

10. Copies of this act shall be conspicuously posted in all cities and towns of this Commonwealth by their respective boards of health.

11. This act shall take effect on its passage.

There is a bill "relative to Compulsory Vaccination" which provides that

Boards of health and other town, city or State officials shall not have the power to compel any man or woman to be vaccinated against his or her consent; neither shall any official have the legal right to order any child to be vaccinated against the will of the child's parent or guardian.

The abuse of the limitations of the existing law in this State already robs the community of some of its good fruits. It is now provided that

No child who has not been duly vaccinated shall be admitted to or connected with a public school, except upon presentation of a certificate signed by a regular practising physician that such child is an unfit subject for vaccination.

It is generally understood that, under this last clause, some individuals licensed to practise do not hesitate to freely furnish such certificates even without seeing the children to whose unfitness they certify, and others regard them as legitimate merchandise to be kept for sale.

A bill "relative to the Vaccination of Children Attending the Public Schools," has been presented to this legislature having for its object the more satisfactory co-operation of school committees and boards of health in this matter.

A bill "to Regulate Vivisection" contains the following sections:

1. It shall be unlawful for any person to perform upon any human patient in a hospital or elsewhere, without the consent of the said patient, a painful or dangerous experiment, except with a view to save the life of the patient, or to inoculate any such patient with disease, for the purpose of experiment, or to administer to such patient a poisonous or dangerous drug for the purpose of experiment.

2. It shall be unlawful for any person not being a doctor of medicine legally qualified to practise as such in this Commonwealth to perform any kind of vivisection or medical or surgical experiment involving pain or discomfort upon any dumb animal.

3. It shall be unlawful to perform upon any dumb animal a painful experiment unless such animal is rendered insensible to pain during the time of the performance of the experiment; but this section shall not be taken to prevent the performance upon a dumb animal of an experiment which produces discomfort as distinguished from actual pain.

4. It shall be unlawful, for the purposes of experiment, to deprive any dumb animal of food for more than twenty-four hours, or of water for more than ten hours.

5. A commissioner of vivisection, nominated by the Massachusetts Society for the Prevention of Cruelty to Animals, and acceptable to the governor, shall annually be appointed by the governor to see that the provisions of this act are enforced. His term of office shall be one year, and he shall serve without compensation.

The said commissioner shall have access at all times to all places where vivisection or animal experimentation is practised or intended to be practised, or where animals are kept which are intended to be used or have been used for vivisection or experimentation; and he shall be permitted freely to inspect such premises and all parts thereof.

7. Whoever violates any provision of this act by performing unlawful vivisection or experimentation, or by preventing or hindering such access and opportunity to inspect as are provided for in Section 6 hereof, shall forfeit a sum not less than $100 nor more than $500 for each offence.

A bill "relative to the State Board of Health" provides that this

board shall have power to make regulations forbidding spitting in public places, including railroad stations and steam and street cars.

There is a somewhat elaborate bill with seven sections designed to provide that

Ice intended for food or drink purposes shall not be composed of water of lower standard of purity than that required for domestic purposes by the State Board of Health.

A bill "for the Establishment of Hospitals for Persons having Smallpox or other Diseases Dangerous to the Public Health in Cities and certain Towns" provides that

1. Cities, and all towns of 5,000 population and over, shall establish within their limits, and be constantly provided with one or more isolation hospitals for the reception of persons having smallpox or other diseases dangerous to the public health. Such hospitals shall be subject to the orders and regulations of the boards of health of such cities and the selectmen of such towns.

2. Whenever the officer of a city or town shall refuse or neglect to carry into effect the provisions of Section 1 of this act, after having requested so to do by the State Board of Health, such city or town shall be liable to forfeit a sum not exceeding $500 for each such refusal or neglect.

Still another bill "relative to the Erection and Maintenance of Pest Houses or Contagious Hospitals by Cities and Towns" makes provision that

No pest house, or contagious hospital, shall be erected or maintained by a city or town within 2,000 feet of the boundary line of any other city or town, without first obtaining the consent of the community affected thereby, and when such permits are granted it shall not exceed a period of five years at any one time, and these permits shall be given only in the following manner, namely, by the consent of the board of health, with the approval of a majority of the members of the board of aldermen of cities, or a majority of the members of the board of selectmen of towns.

An attempt to secure the "Regulation and Control of the Sale and Dispensation of Alcoholic Liquors and certain Poisonous Drugs" sets forth that

1. All alcoholic liquors shall be inspected by skilful persons duly sworn, to their purity, and the poisonous drugs shall be of the "United States Dispensatory" standard.

2. All bottles, glasses and quantities sold or dispensed shall be stamped pure, with the names of the owner and the one who sells alcoholics and poisons, with their sworn affidavit to its standard purity, as described in the "United States Dispensatory."

3. Twice the present price shall be charged for alcoholics, and of the price printed or written on the stamps, two-tenths shall be paid to the United States and three-tenths to the State, five-tenths to the dealer.

4. The right of sale and dispensation of alcoholics shall be obtained by the one who sells, by a petition for and against, signed by a majority of persons residing or doing a legitimate business for three months on the street, within 250 yards of the place of sale and dispensation, and obtained without fraud.

5. Alcoholic liquors shall not be sold within 100 yards of a railroad depot.

7. All may petition against the sale of alcoholic liquors within 250 yards of the place of sale and dispensation, the signers to be eighteen years of age or older, and resident or doing business on said street. The majority of persons shall close or keep open the saloon with sale or dispensation of alcoholic liquors.

A solemn and important looking bill "relative to the Manufacture and Sale of Textile Fabrics and Papers Containing Arsenic," accompanying a petition for an amendment of the existing law, seems to reduce itself to a permit for the manufacture of fly paper.

A bill "to Prevent Substitutions in the Sale of Drugs, Medicines and Articles of Food and Drink," provides that

1. It shall be unlawful for any one, by himself, his agents or servants, in the sale of any article of food or drink, or any drug or medicinal or proprietary preparation, to substitute for or give or deliver for and instead of any such article, drug or preparation bought or called for under any trade or other identifying or distinguishing designation, any article other than the one so bought or called for and designated, without informing the purchaser of such substitution.

The object of this seems to be to control the dispensing by apothecaries or others of "just as good" things.

The bill in support of a petition for authority to grant two degrees — Bachelor of Optics, and Doctor of Physiological Optics — we have already referred to elsewhere.[1]

A few other bills belonging to the class we have selected for notice, especially several relating to the adulteration, substitution or counterfeiting of articles of food or drink, we have passed over. Some of those here cited are grotesque, some are whimsical, some are impractical, some are calculated — perhaps in a modified form — to be of service to our citizens. But the last is not the most numerous division of the four.

A SCHOOL OF TROPICAL MEDICINE IN THE PHILIPPINES.

WHETHER or not the American occupation of the Philippines is to be regarded as a process of beneficent assimilation for the natives at large, it is at least clear that the introduction of modern methods of treating disease is destined to be an unqualified good. Naturally, work in this line has hardly begun, and yet already there is a vigorous demand for more trained men in the medical department of the army of occupation. The usefulness of a physician in this work on tropical disease evidently depends, in great measure, on his preliminary training. Although he may still retain the title of "surgeon," he is very far from that in reality; the demand now is for men whose chief interest lies in that laborious field of study included under the general head of "etiology." Such men must be specially traine in the methods of scientific research, and above all must have a knowledge of bacteriology in the broad sense, or as Dr. Patrick Manson has recently put it, "the student of medicine must be a naturalist before he can hope to become a scientific epidemiologist or pathologist or a capable practitioner. The necessity for this in all departments of medicine is yearly becoming more apparent, but especially so in that section of medicine which relates to tropical disease." How such a consummation is to be attained or approached is the practical question. England and Germany have attempted to solve it by establishing schools, the main function of which shall be the instruction of students and physicians in the subject of tropical disease. These so-called schools of tropical medicine have been carried on with much enthusiasm and with undoubted success, as shown by the increasing number of students, and their eagerness to make practical use of the knowledge they have gained.

The attempt to give such instruction at established medical schools, as a regular part of the curriculum, is not likely to lead to notable results, because the subject has already become too large for cursory treatment, and because the average medical student neither desires nor needs to have knowledge of that character. Special schools are demanded, and, no doubt, will continue to be more and more needed as time goes on. So far as possible it also seems to us desirable that such schools should be established in the habitat of the diseases to be investigated. No doubt a school of tropical medicine in New York or London would attract students and be of value to the cause of progress, but its services would be increased a hundredfold if situated, for example, in India or the Philippines.

As a matter of fact such a suggestion has recently been made for the United States by Dr. J. J. Curry, acting assistant surgeon, U. S. Army. Dr. Curry was one of the army medical officers, appointed some time ago by the Secretary of War, to investigate the diseases of the Philippine Islands; in his report to the surgeon general he makes a strong plea for the establishment of a school for the training of medical men in the diseases of the tropics, at Manila. The school, he says, should be in connection with one of the large military hospitals with a well equipped laboratory attached. "At such a school both clinical

[1] January 24, 1901, p. 98.

and laboratory instruction might be given the new medical officers in the diseases of the tropics, and valuable work on the investigation of tropical diseases might be done. There is great necessity for such instruction, especially as in no medical school in our country are there any courses on tropical medicine." Such a plan would seem on the face of it to be eminently possible, and not by any means an expensive venture. Its usefulness must be unquestioned just at this time of feverish activity in the investigation of epidemic disease. Teachers would no doubt be forthcoming from among those who have already done highly creditable preliminary work, often under conditions of great disadvantage. When we consider that there are upward of seventy-five disorders peculiar to tropical climates treated at greater or less length in Manson's book on "Tropical Diseases," one is impressed with the growing importance of the entire subject.

This author writes further: "Although we do know something about a few of the tropical diseases and their germs, there must be many more tropical diseases and tropical disease germs about which we know absolutely nothing. Who can doubt that just as the fauna and flora of the tropical world are infinitely richer in species than those of colder climates, so there is a corresponding distribution in the wealth and poverty of pathogenic organisms; and that many, if not most, of the tropical diseases have yet to be differentiated."

Such an opinion expressed by one of the most ardent students of the subject must have weight. It is altogether fitting that America should take her place with England in these researches, and such an immediate opportunity seems to be offered in the Philippines. We hope the government may see fit to adopt the very modest recommendation made by Dr. Curry, and forthwith establish the nucleus, at least, of a school of tropical medicine at Manila.

MEDICAL NOTES.

TUBERCULOSIS IN CANADA. — Lord Minto, Governor General of Canada, has recently arranged a conference with reference to the checking of tuberculosis. It was declared the opinion of the conference that it is the duty of every government, municipality and individual citizen to adopt organized methods for lessening the spread of tuberculosis — a disease, it was stated, which was causing directly or indirectly probably one-fifth of the total deaths in the Dominion. The government was asked to assist.

ONE HUNDRED THOUSAND DOLLARS FOR TUBERCULOSIS HOSPITAL. — According to the *Medical Record*, on February 7th Senator Davis, of Buffalo, introduced in the Senate a bill appropriating $100,000 for the construction of buildings for the New York State Hospital for the treatment of incipient pulmonary tuberculosis. The buildings are to be large enough to accommodate at least 100 patients besides officers, employés and attendants. The additional sum of $20,000 is appropriated for equipment and furnishing.

SAMUEL D. GROSS PRIZE AGAIN NOT AWARDED. — No essay deemed worthy of this prize of $1,000 was awarded January 1st. It will be awarded October 1, 1901.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, February 20, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 105, scarlatina 31, measles 48, typhoid fever 4.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending February 16th was 243, as against 226 the corresponding week last year, showing an increase of 17 deaths, and making the death rate for the week 22.6. The deaths from consumption were 29, pneumonia 43, whooping cough 2, heart disease 25, bronchitis 6, marasmus 2. There were 19 deaths from violent causes. The number of children who died under one year was 37, under five years 69, persons more than sixty years 51, deaths in public institutions 69. There were 17 deaths from grip, but in 14 of these fatal cases other diseases contributed toward the cause of death.

A PLAN TO TAX BACHELORS. — As an inducement for young men to marry, a bill has been introduced in the House in Hartford, Conn., entitled "The Marriage of Bachelors." The bill reads as follows: "Every bachelor who shall remain unmarried at the age of forty years shall not thereafter be allowed to enter into any matrimonial alliance except upon the payment to the State of Connecticut of the sum of $100." The measure is said to be regarded seriously by its introducer.

BEQUEST TO PRESBYTERIAN HOSPITAL, NEW YORK. — By the will of J. Arent Vanderpoel, who died recently in Brookline, Mass., there is left, among other charitable bequests, the sum of $25.000 to the Presbyterian Hospital, of New York, to be available after the death of the testator's widow.

NEW ENGLAND BAPTIST HOSPITAL. — The New England Baptist Hospital has bought a piece of land on Mellen Street, Roxbury, where it already owns and occupies 35,862 square feet.

NEW YORK.

MORTALITY STATISTICS. — The Board of Health reports show a considerable increase in the mortality of the city in January over December, and over January of last year. The annual death rate in January, 1901, was 25.15, as against 20.73 in December, and 20.05 in January, 1900. The most marked increase is in the mortality from pneumonia, the weekly average of deaths from which was 270, against 175 in December. The weekly average of deaths from phthisis

increased from 148.25 to 179.75; influenza, from 5.75 to 88.75; diphtheria and croup, from 50.25 to 55.25; scarlet fever, from 5.75 to 18.50; bronchitis, from 35.50 to 54.75, and smallpox, from 1.25 to 2.25. The weekly average of deaths from typhoid fever decreased from 22.50 to 13.50; measles, from 4.25 to 1.75, and whooping cough, from 5.50 to 3.75. The highest mortality from pneumonia was reached in the week ending January 12th, when there were 328 deaths from the disease. It is probable that this fatality was largely due to the effect of influenza. In the week ending January 19th there were reported 139 deaths from influenza, independent of pneumonia.

THE NECESSITY OF A DIAGNOSIS QUESTIONED. — At the third hearing, on February 13th, before the Assembly Committee on Public Health, at Albany, on the Bell bill, the following somewhat extraordinary revelation was made by George Kinter, a "scientist healer." Being asked by Dr. Henry, chairman of the committee, what preparatory study the healers in Christian Science had, if any, he said that they took a course at the Massachusetts college of the society, and in reply to the question whether this course gave them the ability to diagnose disease, he stated that it did. Dr. Frank Van Fleet, of the New York County Medical Society, then put the question: "Would your treatment in a case of cerebral abscess, a fractured bone, a hemorrhage from an artery, or a case of smallpox differ?" "It would not," was the reply. "If your treatment never differs," asked one of the committee, "what is the necessity of your making a diagnosis." "Really, there is none," was the final answer.

ANNUAL REPORT OF GERMAN HOSPITAL AND DISPENSARY. — The thirty-first annual report of the German Hospital and Dispensary, just issued, shows that during the past year $10,047 was received in legacies and $4,964 in donations. Of 3,352 patients treated in the hospital department, 2,447 were free patients and the average daily cost of each patient was $1.20. An annex, with an accommodation of seventy beds, is now in course of construction, and it is expected will be completed by June. It is to cost $180,000, and of this amount $115,760 has thus far been collected among the German population of the city. The trustees report that, in order to meet the demands upon it, it has been found necessary to increase the number of pupils in the training school for nurses to fifty, and that a three years' course, which assures a higher degree of efficiency, has also been introduced.

THE BRAINS OF DR. EDOUARD AND DR. E. C. SEGUIN. — At a meeting of the New York Academy of Sciences held February 15th, Dr. E. A. Spitzka read a paper on the anatomical characteristics of the brains of the late Dr. Edouard Seguin and his son, Dr. Edward C. Seguin, which were bequeathed by these distinguished physicians to his father, Dr. Edward C. Spitzka. One of the most prominent features in both brains was the remarkable development of the left island of Reil, and it was noted that many peculiarities of the right side of the father's brain appeared on the opposite side of the son's brain. In closing, Dr. Spitzka urged all successful men to will their brains to science, since this important department of anatomical study is now confined, for the most part, to an examination of the brains of criminals and other outcasts of society.

LIBEL SUIT REGARDING LEPROSY. — In a libel suit tried in the Kings County Special Term, Justice Gaynor has held that to falsely publish of one that he has leprosy is libellous, since the disease, whether properly or not, is still commonly regarded as infectious or contagious, and as tending to cause the sufferer to be shunned or excluded from society. At the trial the defendant contended that it is now scientifically established that leprosy is not infectious or contagious, and therefore is no longer within the definition of slander.

NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL. — According to the report of Dr. Russell A. Hibbs, surgeon to the hospital, during the year ending September 30, 1900, 164 patients were admitted to the wards, 110 discharged improved, 3 unimproved, 3 died and 48 remained under treatment October 1, 1900. The number of days of hospital care for free patients was 17,902; for pay patients, 2,894; total, 20,796. Thirty-six patients were treated by operative measures, and 57 operations were performed. All were successful.

BEQUESTS TO HOSPITALS. — Among the charitable bequests left by the late Oswald Ottendorfer, editor and proprietor of the *New Yorker Staats-Zeitung*, are $100,000 to the Isabella Heimath, founded by his wife, and $20,000 to the German Hospital and Dispensary. By the will of Mrs. Catharine Skatts, $5,000 is left to the New York Eye and Ear Infirmary, and $1,000 to the Home of St. Giles the Cripple, Brooklyn.

SMALLPOX. — On the arrival, on February 14th, of the Bremen steamship, *Oldenburgh*, which brought 1,132 steerage passengers, it was found that there was a case of smallpox on board, and the vessel was detained at quarantine until she could be disinfected and the passengers vaccinated. On February 11th there were 73 smallpox patients under treatment at the hospital for contagious diseases on North Brother Island.

NEW CONTAGIOUS PAVILION AT EYE AND EAR INFIRMARY. — The new Platt Pavilion, for the isolation and treatment of cases of contagious ophthalmia, has just been opened at the New York Eye and Ear Infirmary. The building was erected to the memory of the late James N. Platt, and presented to the institution.

ABOLITION OF PRESENT STATE BOARD OF HEALTH. — On February 14th, the State Senate passed a bill abolishing the present State Board of Health and establishing in its place a single-headed commission, in accordance with the recommendation of the governor in his annual message.

Obituary.

SAMUEL C. BUSEY, M.D.

SAMUEL C. BUSEY, M.D., died in Washington, D.C., February 12th, at the age of seventy-two. He was a member of the Association of American Physicians and of the American Pediatric Society. He had been for many years a prominent practitioner in the city of Washington, and was deservedly a highly respected man, of much influence both within and without the profession.

Correspondence.

NO PRACTICAL DANGER FROM THE X-RAY.

BOSTON, February 18, 1901.

MR. EDITOR: — In your issue of February 14th is published a letter from Dr. William Rollins, describing an experiment which, if confirmed by future observers, seems to me of very great importance. If the x-ray is capable of destroying life in the mammalia, the fact should certainly be brought to the attention of the medical profession. Dr. Rollins does not give the details of his experiment, merely his deductions. Other experimenters have found the x-ray incapable of destroying even the cryptogamic forms of organic life. However, I do not propose to contradict Dr. Rollins, and leave to the physicists and electricians the task of confirming or disproving the value of his experiments. Since Röntgen pointed out that non-conductors when traversed by the x-light may become conductors, the task of ruling out the electrical effect is not a light one.

What I do wish to call to the attention of your readers is this: that *practically*, in careful hands, there is no danger from the use of the x-ray *to the patient* and very little to the operator.

The facts on which I make this statement are these:

That in the last five years about 8,000 exposures in over 3,000 cases have been made at the Massachusetts General Hospital *without a single case of x-ray dermatitis in the patient.*

That at the Children's Hospital, in the last eighteen months, we have made about 1,000 exposures in over 300 cases, without a *single case of dermatitis in the patient.*

That in the last five years, in my private practice, I have made nearly 1,000 exposures without a single case of dermatitis in the patient.

The sum total is about 10,000 exposures in 4,000 cases without one case of loss of hair or burn of the skin.

As far as danger to the operator goes, there is no question that a serious dermatitis extending into the deeper layers may be set up. At times my own hands have had the typical appearances of a slight grade of this form of burn, but they have never been excoriated nor cracked, nor so severe that I could not go through the ordinary permanganate preparation for surgical operations. I attribute this freedom from trouble to my habit of never exposing myself near the tube if I can possibly help it. I take no other precautions. One severe case of maiming dermatitis I have seen, in a gentlemen whose enthusiasm outweighed his prudence, but the value of whose work has almost compensated for the sacrifice.

I seek the opportunity of mentioning these facts in your columns because I believe that the comparatively small number of unfortunate cases which have been published have circulated much farther than the immense number of fortunate cases, and have given the profession the idea that the process is a dangerous one *to the patient.* No doubt Dr. Rollins's precautions are necessary to an operator who constantly uses this form of diagnosis, but my personal experience leads me to think that the important point is to keep the hands away from the tube. Such sensational headings as "X-Light Kills" are apt to give a wrong impression. The fact that the x-ray is in daily use in the large hospitals without harmful results should be put in blacker type than the death of two guinea pigs.

Very truly yours,

E. A. CODMAN, M.D.,

Surgeon to Out Patients, Massachusetts General Hospital; Skiagrapher to the Children's Hospital.

METEOROLOGICAL RECORD

For the week ending February 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S....3	30.21	24	32	16	65	64	64	W.	N.W.	11	8	C.	F.	
M....4	29.65	26	31	22	88	100	94	N.E.	N.W.	9	10	N.	N.	
T....5	29.48	24	29	18	74	70	72	N.W.	N.W.	26	30	O.	O.	.47
W...6	29.66	18	22	13	51	52	52	N.W.	N.W.	30	24	O.	C.	.03
T....7	29.77	18	26	10	54	44	52	N.W.	N.W.	26	15	C.	C.	
F....8	29.91	20	26	13	51	41	46	W.	W.	14	11	C.	C.	
S....9	29.74	20	30	11	55	66	60	W.	W.	11	12	C.	F.	
☞	29.77		28	15			63							

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Had casual trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 9, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1289	331	23.74	12.72	2 32	.69	3.10
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	271	64	15.13	20.66	—	.37	2.58
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	117	40	26.50	22.23	1.71	5.13	3.42
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	70	18	15.73	37.18	—	—	2.86
Boston	560,892	215	40	19.06	2.78	.46	.46	3.25
Worcester	118,421	45	9	31.08	22.20	6.66	4.44	2.22
Fall River	104,863	42	14	14.28	16.66	—	—	—
Lowell	94,869	36	8	27.80	19.46	—	—	2.78
Cambridge	91,886	46	16	23.87	23.87	—	—	4.34
Lynn	68,513	20	6	15.00	25.00	—	—	10.00
Lawrence	62,559	24	12	4.17	20.85	—	—	—
New Bedford	62,442	27	—	3.70	22.20	—	—	—
Springfield	62,059	15	6	20.01	20.01	—	—	6.67
Somerville	61,643	19	4	36.82	15.78	10.52	5.26	5.26
Holyoke	45,712	13	5	30.76	7.69	—	—	7.69
Brockton	40,063	13	2	7.69	23.07	—	—	—
Haverhill	37,175	7	—	42.87	14.29	—	—	—
Salem	35,656	10	—	10.00	10.00	—	10.00	—
Chelsea	34,072	12	—	—	—	—	—	—
Malden	33,664	7	4	85.71	—	57.16	—	28.58
Newton	33,587	8	2	25.00	25.00	—	—	12.50
Fitchburg	31,531	10	2	20.00	10.00	—	—	10.00
Taunton	31,036	18	5	22.20	16.65	—	5.56	—
Gloucester	26,121	—	—	—	—	—	—	—
Everett	24,336	9	6	11.11	22.22	—	—	—
North Adams	24,200	5	1	—	—	—	—	—
Quincy	23,899	3	—	—	66.67	—	—	—
Waltham	23,481	9	—	44.44	—	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	7	1	—	—	—	—	—
Chicopee	19,167	7	2	14.29	14.29	—	—	—
Medford	18,244	5	2	—	20.00	—	—	—
Newburyport	14,478	3	1	—	66.67	—	—	—
Melrose	12,962	4	—	25.00	—	—	—	—

Deaths reported 2,399; under five years of age 604; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough,

erysipelas, fevers and consumption) 520, acute lung diseases 402, consumption 280, diphtheria and croup 73, diarrheal diseases 48, scarlet fever 43, influenza 37, typhoid fever 22, whooping cough 11, cerebrospinal meningitis 6, measles 5.

From whooping cough New York 3, Baltimore and Cambridge 2 each, Providence, Pittsburg, Boston and Everett 1 each. From cerebrospinal meningitis New York 5, Boston 1. From scarlet fever New York 30, Malden 4, Worcester 3, Pittsburg and Somerville 2 each, Boston and Revere 1 each. From typhoid fever New York 9, Pittsburg 6, Worcester 2, Baltimore, Boston, Somerville, Salem and Taunton 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 26th, the death rate was 17.9. Deaths reported 4,039: acute diseases of the respiratory organs (London) 394, whooping cough 92, diphtheria 75, measles 58, fever 48, diarrhea 43, scarlet fever 31.

The death rates ranged from 10.5 in Portsmouth to 24.6 in Gateshead: Birmingham 20.4, Brighton 17.5, Bristol 14.1, Croydon 13.2, Derby 15.2, Halifax 19.5, Hull 18.9, Leeds 17.3, Liverpool 24.0, London 17.6, Manchester 20.2, Newcastle-on-Tyne 20.4, Norwich 23.7, Nottingham 19.5, Plymouth 19.1, Sheffield 19.7, Swansea 16.0, West Ham 11.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 16, 1901.

C. P. BAGG, passed assistant surgeon, detached from Cavite Naval Station and ordered to the "Culgoa," February 7th.

A. R. ALFRED, passed assistant surgeon, detached from the "Culgoa" and to the Naval Station, Cavite.

C. BIDDLE, surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered home to wait orders, February 9th.

D. O. LEWIS, surgeon, detached from the "Iowa" and ordered to the "Philadelphia," February 13th.

W. F. ARNOLD, surgeon, detached from the Naval Recruiting Rendezvous, Chicago, Ill., March 1st, and to the "New Orleans," sailing March 15th.

S. H. GRIFFITH, surgeon, detached from the "Prairie," when put out of commission, and ordered to special duty under the Bureau of Medicine and Surgery.

F. J. B. CORDEIRO, surgeon, detached from the "New Orleans," on reporting of relief, and home to wait orders.

A. M. MOORE, surgeon, retired, ordered to duty at the Naval Recruiting Rendezvous, Chicago, Ill., March 1st.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEBRUARY 14, 1901.

SAWTELLE, H. W., surgeon. Granted leave of absence for thirty days from February 20th. February 14, 1901.

KALLOCH, P. C., surgeon. Granted leave of absence for three days from February 17th. February 8, 1901.

GEDDINGS, H. D., passed assistant surgeon. Granted leave of absence on account of sickness, for eight days, from January 26th. February 12, 1901. Granted leave of absence for thirty days from February 3d. February 12, 1901.

GARDNER, C. H., passed assistant surgeon. Granted leave of absence for seven days. February 11, 1901.

PARKER, H. B., assistant surgeon. To proceed to Gulf Quarantine and assume temporary command of the service during the absence on leave of the medical officer. February 8, 1901.

MOORE, DUNLOP, assistant surgeon. To proceed to Port Townsend, Washington, and assume temporary command of the service during the absence on leave of the medical officer in command. February 11, 1901.

MCCOY, G. W., assistant surgeon. Granted leave of absence for fourteen days from March 18th. February 12, 1901.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.— The Section for Obstetrics and Diseases of Women will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, February 27, 1901, at 8 P. M.

Papers: Dr. Edward B. Lane, "Puerperal Insanity."

Dr. William J. Daly: "Ophthalmia Neonatorum."

Dr. Sarah Palmer: "Hysterectomy for Rapidly Growing Myoma, Complicated by Pregnancy."

E. S. BOLAND, M.D., *Chairman.*

W. H. GRANT, M.D., *Secretary*, 419 Boylston Street.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting of the society will be held at 3 Park Street, on Thursday, February 21st, at 7.30 P. M.

Papers: "Cesarean Section and Hysterectomy for Fibroid Uterus," by Dr. Mary A. Smith.

"Mental Defectives: Their Needs," by Dr. Bertha C. Downing.

AGNES C. VIETOR, M.D., *Secretary*, Trinity Court.

THE PHILADELPHIA NEUROLOGICAL SOCIETY. — A stated meeting of the society will be held on Monday, February 25, 1901, at 8.15 P. M.

Drs. Wm. H. Teller and F. X. Dercum will exhibit "A Case of Astereognosis."

Drs. George L. Walton and Walter E. Paul, of Boston, will, by invitation, read a paper entitled "Astereognosis: with Illustrative Cases."

AUGUSTUS A ESHNER, M.D., *Secretary.*

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION. – The association will meet in its next annual session in Cincinnati, O., April 11th and 12th.

W. L. BALLENGER, M.D., *Secretary.*

APPOINTMENTS.

F. W. SPALDING, M.D., has been appointed visiting ophthalmologist to the Long Island Hospital, Boston Harbor.

JOHN J. MAGRATH, M.D., has been appointed attending surgeon to the Harlem, N. Y., Hospital.

ERRATUM.

In a note on *Diphtheria at the Naval Hospital, Chelsea*, published in the issue of the JOURNAL for February 7th, an error was made in the text, in the substitution of "marine" for "naval." The sentence should read: About 30 cases of mild diphtheria have developed at the *Naval* Hospital in Chelsea.

RECENT DEATHS.

BENJAMIN FRANKLIN, M.D., of Newark, N. J., died from the effects of influenza on February 6th, at the age of fifty-four. He was born in New York and graduated from the Medical Department of the University of the City of New York, and was a veteran of the Civil War.

FRANK BOND, M.D., of Brooklyn, N. Y., died on February 10th. He was born in Erie County, Pa., in 1827. He was graduated from Williams College in 1851, and from the Medical Department of the University of the City of New York in 1857.

PETER MOIR BARCLAY, M.D., a leading physician of Orange County, N. Y., died at Newburgh-on-the-Hudson, on February 11th. He was born in Aberdeen, Scotland, in 1834, and was graduated from the Medical Department of the University of the City of New York in 1855.

BOOKS AND PAMPHLETS RECEIVED.

A Clinical Case. By A. R. Moulton, M.D. Reprint. 1900.

Report of the Commissioner of Education for the Year 1898-99. Vol. II. Washington. 1900.

Annual Reports of the President and the Treasurer of Harvard College, 1899-1900. Cambridge. 1901.

Transactions of the Luzerne County Medical Society for the Year ending December 31, 1900. Vol. VIII.

The Johns Hopkins Hospital Reports. Vol. VIII, Nos. 3-9. Baltimore: The Johns Hopkins Press. 1900.

Fifteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. 1899

A Clinical Treatise on Fractures. By William Barton Hopkins, M.D., Surgeon to the Pennsylvania Hospital, etc. Philadelphia: J. B. Lippincott Co. 1900.

Massage, Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham, M.D., Boston, Mass. Reprint. 1896.

Double Ureter; Report of a Nephrectomy done upon a Young Child with this Condition Present. By John Edward Summers, Jr., M.D., Omaha, Neb. Reprint. 1901.

Report of the Connecticut Hospital for the Insane to the Governor for the Two Years ended September 30, 1900. Middletown, Conn.: Printed by order of the Legislature. 1900.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D., Professor of Obstetrics, Jefferson Medical College, etc. Philadelphia and London: W. B. Saunders & Co. 1901.

Reports of the Trustees and Superintendent of the Butler Hospital for the Insane, presented to the Corporation at its Fifty-seventh Annual Meeting, January 23, 1901. Providence, R. I.

Sixteenth Report (Third Biennial) of the State Board of Health of the State of New Hampshire, for the Two Years Ending November 1, 1900. Manchester: Arthur E. Clarke. 1901.

The Use of the Röntgen Ray by the Medical Department of the United States Army in the War with Spain (1898). Prepared under the direction of Surgeon-General George M. Sternberg, U. S. A. By W. C. Borden, Captain and Assistant Surgeon, U. S. A. Washington. 1900.

Original Articles.

THE USE AND ABUSE OF SPECTACLES.

BY HASKET DERBY, M.D., BOSTON.

Within the memory of living practitioners the choice of spectacles was made by the patient needing them, either on his own responsibility or aided by the optician of whom they were purchased. It was not until 1858 that Donders wrote his first article, entitled "Hints relating to the Use and Choice of Spectacles," and published it in Graefe's *Archive*. For several years following the illustrious professor of Utrecht continued to write on the same subject, and finally, at the instance of the New Sydenham Society, he brought out, under its auspices and in the English language, his great work on "The Anomalies of the Accommodation and Refraction of the Eye."

The introduction of the new doctrines and the placing the choice of glasses in the hands of the ophthalmic surgeon followed in our own country somewhat slowly. In 1861 the Eye Infirmary in this city possessed no trial case of glasses, a few battered frames containing glasses of high power for the use of patients who had been operated on for cataract comprising its entire resources in this line. And in 1862 a leading American ophthalmic surgeon wrote thus: "When possible, any one desiring glasses should go in person to select them from the establishment of a good optician."

With the return from Europe of the younger men of this day, a different system soon began to prevail. The prescription of glasses was now recognized to be properly within the province of the surgeon, and in his hands it has by right ever since remained. In the beginning his task was a simple one. Near sight and old sight, myopia and presbyopia, had been the only conditions recognized by the public at large as requiring the use of glasses. Hypermetropia now first came into prominence as a common form of refractive error, and its neutralization greatly increased the number of glasses worn in the community. Astigmatism was still comparatively unknown. Discovered and described as it existed in their own eyes by Thomas Young in 1793, and later by the astronomer Airy in 1836, the condition was long regarded as an anomaly of infrequent occurrence. Donders published his monograph on this subject in 1862. At this time no trial case, even though made in Germany, contained any cylindrical glasses. The first pair ordered in Boston were prescribed in 1863. The order had to be sent abroad to be filled, and the patient himself walks our streets today. Muscular asthenopia, first brought forward by Graefe in 1862, and with its domain much widened by the researches of Stevens, of New York, has rendered the prescription of prismatic glasses, either alone or in combination, quite a frequent occurrence. The busy practitioner of today finds it hard to imagine the comparatively small number of prescriptions for glasses but little more than forty years ago.

It would be well if this matter of ordering glasses had remained in the hands of the educated physician. But with the increase in the number of recognized anomalies of refraction, opticians themselves multiplied. Optical institutes became the fashion, and proffered instruction on easy terms and extending over but a brief period, in some cases offering to teach by correspondence, to examine candidates for degrees in the same manner, and then to forward the degree itself on the receipt of a stipulated sum. A little knowledge soon proved a dangerous thing. The shop windows in our principal streets teemed with placards, announcing that eyes were examined free of charge; while the rural districts were soon raided by peripatetic sellers of spectacles, who furnished ill-fitting and worse made glasses at a heavy cost, professing to hail from some well-known institution or infirmary, or giving some other false address.

The prescribing of glasses by incompetent and often unprincipled individuals is an abuse that cannot easily be corrected. To the honor of the better class of opticians in a city like our own be it said that they prefer to fill orders sent them, and as a rule avoid the selection of glasses on their own responsibility. If the case be a complicated one, or if the lenses previously worn have been ordered by a surgeon, they refuse to prescribe or change, and urge the patient to seek professional advice. More could not be asked of them, for they naturally cannot be expected to turn away customers who are willing to bear the burden of making their own selections.

Ordered, then, authoritatively or carelessly, the use of spectacles has enormously increased within the past generation. One may walk the streets of Boston and almost fancy himself in some city of Germany or Russia, so numerous are the wearers of glasses. Particularly is this to be observed among young children, both here and abroad. The German writer Seidel has written a little poem in which he pictures two old people sitting together and discoursing about the good old times of their youth, when the world wore so different an aspect. They enumerate many things that were better in those days. And at last one says:

> "The children then were not so pert,
> No spectacles they wore." [1]

The attention of the laity has therefore also been attracted to this state of things.

It is of but little use to allude to the mistakes made by ignorant opticians, or the impositions practised on the public by those greedy of gain. The writer has recently seen a case of simple hypermetropia set down as one of compound astigmatism, and a correspondingly complicated and costly glass ordered; he has seen prisms given where there was no muscular weakness, and cylindrical lenses furnished in emmetropia. He has known a presbyopic patient, suffering from tobacco amblyopia, to be provided with a weak concave lens for reading purposes. The tendency to swell the profits of the store by the sale of a compound glass at a high price is to a certain class of dealers irresistible. Such conduct on the part of opticians it is easier to deplore than to prevent.

But how is it with ourselves? Does the ophthalmic surgeon of the day make no mistake? Do we not, with the best intentions, occasionally order glasses in cases where their use is not strictly needed, and by enjoining their habitual employment create a dependence on artificial aid that ultimately grows into a necessity? Do we sufficiently consider the moral effect on children, the ridicule the boy or girl at first experiences from his or her companions; the consequent effect on many a sensitive nature; the cosmetic

[1] "Die Kinder waren nicht so keck,
Sie trugen keine Brillen."

disadvantages in the case of young and growing girls; the possible handicap of the young man in search of employment? These considerations are adduced, not that they should be allowed to interfere with needed assistance to refraction, but that they may be at least given due weight in doubtful cases.

Giving his personal opinion for what it is worth the writer's experience has occasionally led him to differ from some of his colleagues in the ordering of glasses.

Before alluding to the different forms of ametropia in which lenses are prescribed, it is well to consider a single source of error on the part of the patient, namely, the influence of the imagination. Great as are the advantages gained by the objective methods of examination, by ophthalmometry, ophthalmoscopy and skiascopy, it is, I think, a recognized fact that it is ordinarily undesirable to base a prescription for glasses solely on the above tests. The patient himself must be questioned and his judgment appealed to. The vision of the unaided eye is, for instance, found to fall slightly short of the normal standard; a weak convex or concave lens, spherical or cylindrical, restores normal vision. Let it not, however, be inferred that the patient, if a young person, surely needs this glass. What examiner has not seen the vision instantly raised one or two-tenths by the application of a pair of plane spectacles? I always test a child with a heavy empty frame, observing its effect, and I often find some improvement in sight. This test occasionally is found of value with those of riper years. The explanation would seem to be simple; the weight of the apparatus induces a belief in its complexity, the patient feels that some change in his sight ought to follow, makes an additional effort and often really sees more in consequence. Occasionally, however, he has heard of the application of this test in others, and comes prepared for it. If I observe him to be suspicious I use with him a pair of glasses the outer surface of which is convex 1 D., and convince him of this fact by the application of the lens measure, the principle of which I manage to explain. If, with these glasses, he sees better, the imagination is again a factor, for I have omitted to inform him that the posterior face of the glass is just as concave as the anterior is convex, and that he is really wearing a pair of plane glasses. If, then, vision remains the same, we are dealing with one whose judgment may be relied on.

There are many who in hypermetropia advise the constant use of neutralizing glasses, both by old and young, and many patients who obey this direction. In this we have departed from the advice Donders originally gave. Speaking of those who in the ordinary affairs of life suffer no inconvenience, and at a distance see well, he says, "We should not press spectacles on them to be worn constantly."[2] This teaching has been confirmed by the most reliable authors, although here and there a writer of eminence takes the opposite view. It would seem that the advice occasionally given those moderately hypermetropic, to put on their glasses on rising and remove them only on retiring, is in many cases injudicious. The patient has become habituated to the moderate use of his accommodation on distant objects, and suffers no ill effects from the slight strain. He sees clearly and distinctly. The use of glasses for the street enfeebles the accommodation, which after they have been worn any length of time rarely regains its former power. The patient is reduced to a dependence upon them which might otherwise have been avoided. It is perhaps imperative that they be used for near work, but when asthenopic symptoms are at other times wanting I believe it to be a serious error to insist on their constant employment. And if the refractive error be not excessive I always attempt to emancipate the patient from his street glasses.

Myopia. — It is in the ordering of glasses for those who are near sighted that the optician makes his most fatal errors. Possessed of no useful knowledge of the ophthalmoscope, and unable to appreciate the existence of serious and possibly progressive organic change in the eye itself, one case of myopia is to him the same as another, and he prescribes the glass that gives the greatest visual acuteness. It is not until incurable macular changes or retinal separation have driven the patient to seek proper medical advice that he realizes how disastrous has been his policy in accepting glasses from unprofessional hands. It may be laid down as an axiom that no glass should be ordered in myopia until a thorough investigation of the history of the patient, the family tendencies, the acuteness of vision and the condition of the interior of the eye has been made. Moreover the case should be carefully followed up from year to year, and the progressive or non-progressive character of the disease fully determined. It is not too much to say that all children should be examined at least once a year during their school life, in order that the first invasion of near sight may be detected and promptly encountered. Fortunately the tests for this purpose are so simple and so readily accessible that the simple examination of the condition of vision may, under ordinary circumstances, be safely conducted by the parent or teacher.

And as we are now treating of the use as well as the abuse of spectacles, it is well to here allude to the important part glasses play in checking the progress of myopia in the young, more especially as so little is to be found on this subject in the accepted textbooks. Donders distinctly advised against the use of glasses for near work in slight degrees of myopia, as well as against full neutralization in the young, at any rate when glasses were first used. He quotes cases of considerable and advancing myopia with good acuteness of vision, treated by rest of the eyes and relatively weak glasses, the trouble, however, still progressing. Other writers have followed his teachings, and we find one of the most careful and reliable of modern teachers, Professor Fuchs, of Vienna, whose book more than any other is probably held at the present day to be the standard manual of opthalmology, saying nothing in his edition of 1898 in regard to the use of neutralizing glasses for all purposes in cases of progressive myopia in the young. When the myopia is 2 D. or less he distinctly advises against the use of glasses for the near, and makes no allusion to the possible prevention of the increase of the near sight.

The credit of devising the most efficacious means for this purpose belongs certainly to American ophthalmologists. At the twenty-eighth annual meeting of the American Ophthalmological Society, in 1892, Dr. Jackson, of Philadelphia, read a paper on the "Full Correction of Myopia," and Dr. Harlan, of

[2] Accommodation and Refraction of the Eye, 1864, p. 281.

the same place, on the "Constant Correction of High Myopia." They both opposed the teaching of Landolt, who states in his work on "The Accommodation and Refraction of the Eye" (English edition, page 490), that "a myope must be prohibited from wearing a concave glass for any distance in which he can clearly see without accommodation." They both advocated the constant and full correction of myopia, especially in the young, as a means of preventing its progress. The discussion that followed the reading of these papers showed substantial unanimity on the part of the members present in approving the views of the readers.

It would be difficult to overestimate the importance of this discovery, for a discovery it is in the true sense of the word. Its general acceptance, in this country at least, at the present day has proved of great advantage. A young person, at the age of twelve or fourteen, begins to complain that he cannot see the blackboard across the schoolroom as well as formerly. Examination shows a moderate myopia, .75 D. or even 1 D. Six months later this has increased to perhaps 1.5 D. Glasses of this strength are given and their constant use enjoined. The progress of the near sight is probably at once arrested, or in the majority of cases its subsequent increase is found to be relatively slight. Certain cases in my own practice have made a deep impression on me. One of these, a boy of ten, came to me many years ago for some slight inflammatory trouble. I took occasion to examine the sight, knowing that both father and mother were very myopic, and found the refraction and vision alike normal. Two years later very slight myopia, about .25 D., was present. This steadily increased, and in seven years had become 5 D. Since then it has, I think, remained stationary. This was some time before the publication of the observations of Jackson and Harlan. Another case is that of a young girl of eight who had normal eyes. At the age of nine she had a myopia of 1.25 D. She went several times through the atropine treatment, with the result of temporarily arresting the progress of the near sight. At thirteen she had myopia 2.75 D., at fourteen, 3.5 D., despite much rest of the eyes and frequent courses of atropine. At fifteen there was myopia 4 D. I had just learned the advantages of full neutralization, and now for the first time gave her the necessary glass. Seven years have now elapsed, and there has been no further progress. Another case was that of a lad, who in 1890, at the age of ten, was slightly hypermetropic. In 1894 he had myopia .5 D. He now went through the atropine treatment without result. There was myopia 1 D. in 1895. He was given neutralizing glasses in 1896, and in 1898 his myopia was found to be stationary. He has since left off his glasses, and although he has since worked hard at the study of civil engineering there has been no change for the worse. These cases are quoted for the purpose of illustration.

Thus in hypermetropia we see glasses worn too much, in myopia probably too little. In speaking of astigmatism we open a new chapter. So much relief has been given to many reflex disturbances by the skilled adaptation of cylindrical glasses, so many headaches have been cured, and so much asthenopia prevented by their use, that they have been and are frequently prescribed in cases where they are not strictly needed, and we find glasses that either do no good or even inflict a certain amount of injury worn by many today. Leaving out of the question the needlessly complicated and costly lenses prescribed by ignorant or rapacious opticians, it is sometimes a question whether we ourselves do not occasionally stray from the path of simplicity, whether we do not rely too exclusively on the objective methods of examination and endeavor to neutralize the astigmatism obtained by the ophthalmoscope, the ophthalmometer, the shadow test, and even subjectively by the patient's inspection of the radiating lines on the astigmatic test card, rather than the simple test of vision on the letters of Snellen or Monoyer. My own experience certainly is that where vision in each eye is normal, whether without glasses or by the aid of the ordinary sphericals, there is little to be gained by going into the question of the existence of slight degrees of astigmatism. "*Das Bessere ist der Feind des Guten*," as the proverb has it. I make this statement with diffidence, well aware that many whose opinions are entitled to respect will not agree with me. It is becoming unusual for patients who already wear glasses to bring in simple lenses for inspection and possible change, so great is the professional tendency to prefer complexity. I certainly believe that a cylindrical addition may safely be dispensed with in cases where vision, either with or without a spherical glass, is found equal to unity.

Concerning the use of prisms there is less to be said. Muscular weaknesses receive local treatment much less frequently than was the case a few years ago. The day has largely gone by when a series of so-called partial tenotomies would be performed, not only for the relief of asthenopia, but even of serious general disease, such as epilepsy and chorea. It is true that this method of treatment has its sphere of action, but a more limited one than was formerly supposed. The writer has come across people whose ocular muscles have been operated on, not only for the relief of headache, but for the cure of rheumatism of the shoulder and torpidity of the bowels. The numerous cases of distressing diplopia and artificial insufficiency that have resulted from the too exclusive use of such a surgical method have brought about its partial abandonment, and this has led to a decrease in the number of prismatic glasses formerly prescribed. It is more and more frequently found to be the fact that apparent muscular anomalies vary directly with the condition of the general health. Within a month or two the writer has seen the entire disappearance of a hyperphoria for which a prismatic glass had been worn two years with great relief, and has verified the restoration to the normal condition of an excessive exophoria on which, in years gone by, he had vainly urged an operation, and for which heavy prisms had been prescribed and worn with much temporary advantage.

AVULSION OF THE FINGER, WITH A CASE IN WHICH THIS ACCIDENT OCCURRED TO AN INFANT TWENTY MONTHS OLD.

BY GEORGE H. MONKS, M.D., BOSTON.

On November 24th I saw with Dr. Bernard T. Daly, of Roxbury, the following case, which seems to me of such unusual nature as to justify its publication.

It appears that an infant, a girl of twenty months, was crawling about the floor, and in some way inserted the little finger of her right hand into the jamb of a door. Immediately after this the door was closed. The parents realized at once that some accident had happened, but they did not discover that the child was definitely injured until, on looking at the right hand they saw that the little finger was missing, a bloody stump appearing in its place. A search was made for the finger, and it was found in the jamb of the door where it had been caught (Fig. 1). The child was given ether, and the stump was trimmed up. In order to get skin enough for the flaps it was found to be necessary to dissect out the first phalangeal bone, which still remained connected with the hand. The flaps were then united by suture. Recovery followed.

An examination of the finger, which was somewhat dried when I saw it, showed that a long portion of the flexor tendon was attached to it — a fact which suggested that the finger had not been simply crushed off, but actually torn off by traction of some sort. Exactly

FIG. 1.

how the traction was applied is not clear. The history throws no light on it. It is quite possible that, at the moment the finger was caught, the child herself instinctively pulled back her hand with such force away from the finger, as it were, that the finger and the tendon were left in the door.

This injury is commonly referred to in the textbooks, and occasionally cuts illustrate the text. An illustration in Billroth shows a middle finger, which has been torn from the hand. Attached to the finger are two flexor tendons and one extensor. Beside this cut is another showing the entire arm, including scapula and clavicle, which had been pulled off by machinery. In Bryant's "Surgery" there is an excellent drawing of an avulsed finger. In the first volume of Dennis's "Surgery" are beautifully shown several terminal phalanges of the thumb which had been torn off in various ways — one of them in an attempt to reduce a thumb dislocation. A flexor tendon is attached to each specimen.

In the Warren Museum at the Harvard Medical School there are several interesting specimens illustrating avulsion, to which the curator, Dr. Whitney, kindly called my attention. Among them are the following:

No. 1,619. A dry specimen furnished by Dr. H. O. Martin, of Roxbury, in 1854. In this case the last phalanx of the thumb was torn off, and the whole of the long flexor drawn out.

No. 1,621. Specimen, sent by Dr. King, of Nantucket, in 1856, consisting of the last phalanx of the little finger and about 10 inches of the flexor tendon. The finger had been amputated at the joint by a finger ring. The specimen — so the story goes — was from a man who, in falling from the upper deck of a steamboat, caught his finger ring upon a hook, where it was left hanging with the finger and tendon.

No. 3,723. Specimen showing two phalanges of the index finger torn off at the articulation by machinery, and 7½ inches of the flexor tendon drawn out. (Dr. H. J. Bigelow in 1870.)

No. 5,307. Middle finger of right hand torn off by machinery and flexor tendon with shreds of muscle drawn out. (Dr. John Jeffries in 1843.)

No. 5,308. A dried specimen. The last joint of the index finger torn off, and with it the flexor tendon, and a small piece of muscle. "The patient, a healthy lad of seventeen years of age, got his finger caught beneath a heavy piece of timber, and without waiting for assistance, made a sudden and strong effort, and tore it off at once." (Dr. James B. Gregerson.)

No. 5,411. "The skin and nail of the little finger from a lad of thirteen years, who, jumping up to reach something on a hook, got the hook caught in a ring which he had upon the finger, and tore the skin and nail entirely off. The patient eventually had a serviceable finger, upon which a rudimentary nail grew. The ring accompanies the specimen."[1] (Dr. William E. Coale in 1845.)

No. 6,312. The specimen consists of the last phalanx and the skin that covered the last two phalanges in connection with it. The patient, a young clerk in the post office, who had a thin plain gold ring upon the little finger of his right hand, slipped from a stool, the ring catching in a hook as he fell. This ring, cutting through the skin on the back of the finger commencing just below the second joint, amputated the last phalanx at the joint. The ring remained on the hook and the finger fell to the floor. There was very little hemorrhage.[2] (Specimens furnished by Dr. D. S. Slade. Case reported in the *Boston Medical and Surgical Journal* for February 8, 1855.)

No. 6,577. "The little finger and flexor tendon torn off by a finger ring. From a young man who jumped from the top of a stage coach and caught the ring in the rail." The integument is extensively lacerated, and the last phalanx completely separated from the second at the articulation; but flexor tendon not torn through at this point. The accident happened in July, 1866.

Another specimen, a dried one, consists of the principal part of the right hand with a thumb and three fingers. Many long tendons are attached. The ap-

[1] No bone was torn off in this instance. It is the only case I could find where all the soft parts, including the nail, had been pulled off, the bones and tendons remaining with the rest of the hand.

[2] It is worthy of note that no tendon was pulled out in this case, all the tendons having been severed at about the level where the finger was torn off.

pearance of the specimen suggests avulsion. No history can be found.

In the "Museum Catalogue," under the heading of No. 3,709, a case is related in which the entire upper extremity of a boy of thirteen years was torn off as a result of its being caught in a machinery belt. This patient survived the terrible injury. Three photographs can be seen at the museum, showing his condition after recovery. The case occurred in the practice of Dr. Charles D. Homans. The accident happened in 1870.

But, returning to the subject of avulsion of the fingers, the following *general observations* may be made:

(1) *As to the nature of the accident.* — (*a*) The finger may be firmly held in something moving away from the person with considerable force, as machinery, vehicles, etc. The tearing off of a terminal phalanx in efforts to reduce a dislocated thumb would thus come under this heading. (*b*) The finger may be held while the body, or at least the hand, is pulled away from it. Thus, the finger may be caught on a hook or any other projecting object, while the person is rapidly moving, as in jumping, falling or running. A finger ring catching on such a projection amputated the finger in a number of cases given. It is likely that the involuntary "pull-back" of a hand, one finger of which has been suddenly caught, as in the case of the infant described at the beginning of this article, may be in certain cases of sufficient force to pull the hand away from the finger.

(2) *As to where the bones usually give way.* — The joints are the weakest parts, and, therefore, it is usually at a joint that the phalanges are separated from the rest of the hand. Avulsion of the terminal phalanx would appear to be the commonest variety. Occasionally, when the finger has been much crushed or bent, a phalanx may break and the joint may hold. The separation rarely takes place as far back as the metacarpophalangeal joint.

(3) *As to whether or not the tendon is pulled out.* — A tendon — and it is generally the deep flexor tendon — is usually attached to the avulsed finger and forms part of the specimen. Sometimes both flexors and the extensor come away with the finger. The finger has been known to come off without either tendon; a circumstance which suggests that the violence in this special case was quite as much in the nature of a crush as a pull. The end of an avulsed tendon usually exhibits a few muscular shreds, suggesting that the rupture took place at the spot where the tendon was entering the muscle. This spot would therefore seem to be the weakest point. The reason that the deep flexor is usually found attached to the avulsed finger is (*a*) because this tendon is a round cord (not flattened nor split like the others), and is probably the strongest of all the tendons; (*b*) because it is attached to the base of the terminal phalanx, and therefore in all cases it is pulled upon.

(4) *As to where the skin and other soft parts are torn off.* — In almost all cases the skin is torn from the finger at a much higher level than that where the bones give way. If the violence of the pull has been more or less superficial, it may happen that only the skin and soft parts are torn off, the bones and tendons remaining connected with the hand.

(5) *As to hemorrhage.* — It would appear that the bleeding following the accident is seldom troublesome. This is just what one would expect, as tearing a blood vessel probably favors contraction of the torn ends just as twisting does.

(6) *As to treatment and result.* — In order to get flaps it will always be necessary in cases of this kind to dissect out a portion of the bone in the stump. The operation is very simple, and the results, even in the days before the use of aseptic or even antiseptic methods, were almost always good, so far as healing was concerned. This is rather singular, as in former times such a wound was pretty sure to be infected, and the long synovial track left empty by avulsion of the tendon invited an extension of the suppurative process up the arm.

No attempt should, of course, be made to replace the avulsed portion of the finger, as has been sometimes done with severed digits. An injury of this nature has damaged the part beyond possibility of repair.

TWO CASES OF LIGATURE OF THE INTERNAL JUGULAR VEIN FOR INFECTIVE THROMBOSIS OF THE SIGMOID SINUS DUE TO PURULENT OTITIS MEDIA; ONE RECOVERY AND ONE DEATH.[1]

BY FREDERICK L. JACK, M.D., BOSTON.

LIGATING the internal jugular vein as a preliminary to operating for sinus thrombosis is comparatively rare. We know from the data already at hand that the mortality in sinus thrombosis has been less in those cases in which the vein has been ligated. The records of many cases must be accumulated, however, before such comparisons are of value. These 2 cases are reported with a view of adding to the statistics bearing on this point, as well as with the hope that they may throw some light on the subject in general.

CASE I. P. L., a man of thirty-four, was admitted to the Massachusetts Charitable Eye and Ear Infirmary, Boston, August 30, 1900. He was suffering from a suppurative right middle-ear inflammation of two months' standing. He had always been in good health up to this time. Since the beginning of the attack he had had otorrhea, pain in the ear and right side of the head, varying in intensity. On admission the auditory canal was found filled with a purulent discharge; the inner posterior wall was bulging. The membrana tympani was of dark color and boggy, and there was a small perforation in the posterior inferior quadrant. The mastoid process was tender to deep pressure, especially over the tip. The patient remained fairly well for five days, when the temperature rose to 101° F., with a chill. Examination of the eyes was negative. The blood count was normal.

Operation. — On September 5th the mastoid antrum and the middle ear were opened in the usual way, and found filled with pus and granulation tissue. The bone over the sigmoid sinus was removed with chisel and mallet, exposing the wall of the sinus for ¾ inch. The wall of the sinus was carefully examined and found thickened and covered with granulation tissue. The granulations were removed and the wound was thoroughly irrigated and dressed with iodoform gauze. The next morning a severe chill

[1] Read by title at the Third Pan-American Medical Congress, Havana, February 4, 1901.

occurred, a rise of temperature to 102° F., followed by profuse perspiration. The pulse was 130. Upon changing the dressing the exposed wall of the sinus appeared very dark in color without pulsation. It was evident that the sinus contained a disintegrating thrombus and its removal after ligating the internal jugular was deemed the safest means of arresting further septic absorption. An incision 1 inch below the tip of the mastoid along the anterior border of the sternocleido muscle was made. Dissection was carefully continued down to the large vessels in the neck and the vein separated from the sheath. An aneurism needle was then passed under the vein above the anterior belly of the omohyoid muscle and the vessel ligated with catgut. The incision was closed with silk sutures. The sigmoid was then opened and a small thrombus containing pus was removed. The wound was thoroughly cleansed and lightly packed with iodoform gauze. For three days following the operation, the symptoms improved and the temperature remained normal. The wound in the neck healed by first intention and the stitches were removed. On the fourth day, however, the patient complained of a chilly sensation and temperature rose to 101° F. There was slight discharge of pus from the mastoid wound. During the next two days there were two chills with subsequent elevation of temperature from 104° to 101° F. The mastoid wound was frequently dressed and thoroughly cleansed. The blood count again was negative. The urine was normal. Seven days after the operation a lull took place in the symptoms and the temperature dropped to 95° F. This subnormal temperature persisted for several days.

From now on the patient made an uninterrupted recovery and was discharged from the infirmary thirty days after ligating the internal jugular vein. Both wounds were perfectly healed.

CASE II. P. K., male, twenty-two years old, admitted to the infirmary September 19, 1900, suffering from a chronic otorrhea in the left middle ear with an infective sigmoid sinus thrombosis and probable cerebral abscess. The discharge from the ear had been constant for several years. His present illness dated back six days prior to his admission, when he complained of intense pain over the left side of the head followed by vomiting and rigors. The general condition was alarming. The temperature was 106° F, the pulse 120. There was no mastoid tenderness or swelling. Pressure over the upper half of the internal jugular and cervical triangle was painful. The auditory meatus was filled with fetid pus. The drum membrane was much thickened and perforated posteriorly. The blood count showed increase of white corpuscles (19,000). No plasmodia were found. Ophthalmoscopic examination was negative. The chest and abdomen were normal.

Operation. — The drum was freely incised and the usual incision over the mastoid was made. The bone was sclerosed, and the antrum when opened was found filled with granulations and pus. The sigmoid groove was removed with difficulty on account of the ivory-like character of the bone. The sinus was found thrombosed and covered with foul smelling pus and sloughing tissue. The sigmoid was then opened upwards into the posterior fossa of the skull and downwards toward the bulb of the jugular. The sinus was found to contain a decomposing thrombus to the exposed limit in both directions. At this point it seemed necessary, to prevent further dissemination of septic material, to ligate the internal jugular before taking away the thrombus. An incision along the anterior edge of the sternocleido muscle and careful dissection exposed the vein filled with fluid blood. In this case ligation was made difficult by free venous hemorrhage which obscured the jugular. The vein was, however, ligated about 1 inch above the clavicle and the wound packed with iodoform gauze. The facial and lingual branches were also ligated. The whole of the thrombus was then removed by means of the curette from the bulb upwards an inch into the posterior fossa of the skull. One drachm of foul-smelling pus deeper in was evacuated between the dura mater and the skull. The patient bore the operation poorly and further exploration seemed inadvisable. The cavity was washed out and filled up with iodoform gauze. One hour later the temperature had fallen to 101° F. The pulse was 160.

The patient was fairly comfortable for the next two days. He had a slight cough and complained of pain in the chest. His temperature was about normal and the pulse diminished in rapidity. The wounds were dressed and found free from pus. On the third day after the operation, however, the symptoms became worse. The temperature ranged from 101° to 107° F. with chills. The cough increased, accompanied by expectoration of offensive odor. An examination of the lungs proved negative. He rapidly sank and died nine days after the operation.

Post-mortem examination showed the dura over the tegmen mastoidei for an area 1½ inches in diameter, thickened and granulated. The brain in the same region was intensely congested, but otherwise normal. The sinus over the cerebellum nearly to the torcular Herophili was necrotic. There was a layer of pus between the dura and the skull on both sides of the sinus spreading over the posterior portion of the petrous bone and extending well into the cerebellar fossa. Pus was found surrounding the vein in the neck from the bulb downwards about 2 inches. The lungs were normal, with the exception of a small abscess cavity of doubtful etiology near the apex of the right lung. A pathological diagnosis was made of epidural abscess, left lateral sinus thrombosis and septicemia.

Remarks. — The early constitutional symptoms of these cases are of interest. The first illustrates the so-called malarial type; the second the typhoidal. In the second case valuable time was lost before entrance to the hospital. The patient was supposed to have typhoid fever. When typhoid or malarial symptoms are present in cases of suppurative middle-ear disease, the chances are that the ear disease is primary, and the resulting symptoms, however severe, do not contraindicate an exploratory operation to determine the condition of the sinus; in fact, life may depend on immediate action.

It is interesting to note the rise in temperature without apparent cause four days after ligating the vein. A number of observers have called attention to an elevation for a day or two after the operation, and have considered it due to the elimination of the general sepsis. In my case the rise coming four days after the operation indicated the reverse, namely, an increasing septic absorption.

Every hour of delay in removing the source of infection naturally lessens the chances of recovery. The results in early and late operation are clearly contrasted in these cases. What the result of early ligating in the second case would have been we can only conjecture. Time is important If, as in the first case, operation is done before a general septic invasion the chances of recovery are good. If after, as in the second case, recovery is improbable. Ligature of the vein is theoretically the most complete means of obliterating the channel of infection and is a procedure recommended by some in every case of disintegrating thrombus. So far as 2 cases have any weight, the evidence is in favor of ligating. Yet cases of successful removal of septic clots without ligation of the jugular have been reported by a number of operators, notably by Dr. Macewen, of Glasgow. Although the operation may be difficult and in some cases dangerous, still its omission may lead to greater danger. In my first patient the primary focus was thoroughly removed in both directions until a firm thrombus was reached, but without any subsequent improvement of symptoms.

Conclusions.— In acute cases before ligating the vein remove the purulent material in the sinus until a healthy clot is reached. After this operation, if rigors and elevation of temperature recur immediately, ligate the jugular vein and then remove the entire thrombus above and below until a free flow of blood takes place. If at the original operation no healthy clot is found, ligate immediately. In chronic cases no time should be lost in ligating the vein and completely removing the thrombus.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 8, p. 186.)

Regular meeting, December 14, 1900, the president, Dr. C. B. Porter, in the chair.

Dr. Walton showed a

CASE OF BRAIN TUMOR WITH ASTEREOGNOSIS.

This young woman presented herself at the Neurological Department, Friday, November 17th, complaining of numbness in the left arm and leg. The symptom had been of gradual onset, commencing in the leg about six weeks earlier, ushered in by a temporary blur of vision and loss of power. There had been occasional slight occipital headache, and occasional involuntary movement of the left hand, not amounting to spasm. Her movements suggested slight weakness on the left side, or perhaps rather awkwardness; she drooped a little and favored the left leg in walking, but there was no decided limp or toe drop; the separate motions were made perfectly and with good strength, the grasps being practically alike. The knee jerk was exaggerated on the left. Ankle clonus was present, but there was no plantar reflex. In other respects she was well, and was doing her work as a compositor.

On investigating the numbness it was found that when objects were placed in the left hand, she was unable to name them with closed eyes, for example, a knife, a coin, a pencil. On analyzing the anesthesia only a slight degree of loss of tactile sensation appeared, by no means enough to explain her inability to name objects. The temperature and pain senses were also slightly impaired. The so-called muscle sense was lost; she could not tell with the eyes closed whether the fingers were raised, lowered or separated. Examination was otherwise negative, including that of the fundus oculi.

The diagnosis was made of subcortical tumor of the brain in the parietal region. It was decided not to advise operation until the symptoms became more marked. Monday she returned, when Dr. Putnam examined her and agreed in the diagnosis, noting also the fact that there was marked loss of space sense, two points being felt as one on the palmar surface of the hand, until widely separated.

The patient continued her work and was practically well up to Wednesday, when there was rapid onset of left hemiplegia, violent headache and vomiting. Dr. Hamilton attended the patient at her home and Drs. Putnam and Lord were called to see her. Her condition steadily grew worse and she was urged to enter the hospital for operation. She delayed until Friday morning, when her general condition had become alarming. At this time the Babinski reflex was present on the left. The operation was performed that day by Dr. Warren, who will describe the technique.

With regard to the point of election for operation, we benefited by the experience of Drs. Mills and Keene, who operated under very similar conditions, by removing a large flap bounded anteriorly by the fissure of Rolando. The tumor in their case presented so far anteriorly that it was necessary to enlarge the opening forwards by rongeur forceps. In our case it was planned, therefore, that the edge of the flap should extend well forward, so that its centre should be just posterior to the fissure of Rolando; this decision was justified by the result, as the trocar on its first introduction at this point, directed toward the median line, entered the cyst.

Recovery from operation has been uninterrupted; there is now only occasional slight headache, no vomiting, no elevation of temperature. A certain degree of movement is now present in the arm and leg. The Babinski reflex has disappeared.

The importance of recognizing astereognosis (loss of ability to recognize objects, from *στέρεος*, solid, and *γιγνώσκειν*, to know) lies in the cerebral location of the function involved. Of course if tactile sense is entirely lost in a given case, the patient will be unable to recognize objects placed in the hand, and in such a case the symptom is of no material aid in diagnosis, inasmuch as tactile loss may be due to peripheral or spinal, as well as cerebral, lesion; but given preservation, or comparative preservation, of tactile sense, if the patient is still totally incapable of recognizing such objects, the case falls in quite another category.

The recognition of the nature of objects involves a higher psychical process than mere sensation, and requires the co-ordination of various senses, that is, those of posture, space, pressure, temperature and position; the space, position and posture senses enable us to recognize the *form* and *size* of objects, the pressure and temperature sense their *character*, as, for example, whether of metal or of wood; still further, for the proper recognition of objects we require the integrity of our memory for the sensations excited by simi-

lar objects in the past. Such processes are essentially cerebral.

Astereognosis, while generally neglected, has been carefully studied by certain investigators (Hoffman, Dercum, Sailer). It appears from their observations that the symptom may be produced in various ways, and may imply various degrees of diminution of the different factors concerned in sensation.

It would seem that the most constant defects involve (1) so-called muscle sense or posture sense of the fingers; (2) space sense, or the recognition of the number of points coming in contact with the skin, and (3) position sense, or recognition of the place touched. The loss of any one of these sensations may produce the symptom, and it would even appear that astereognosis may occur while all individual varieties of sensation are perfect, including touch, temperature, space and posture. (I have not alluded to pain sense, as this factor can hardly have much bearing on the subject, further than to indicate the disagreeable degree of sharpness, heat or cold, or the violence of contact.) One case of astereognosis has, in fact, been reported in which all the senses were normal. This would imply lesion of a centre high in the psychical scale. In such a centre may be stored the memories of the feel of objects, and to this centre we perhaps appeal for the reproduction of ideas aroused by such complex sensations.

The condition is perhaps somewhat analogous to that of mind blindness and word deafness, though a fundamental difference exists as regards diagnosis, in that stereognosis apparently has a bilateral representation in the brain, for its loss occurs in both right and left hemiplegia. The exact position of these centres, if, indeed, they exist as such, is not established, a fact not surprising, in view of the lack of unanimity regarding the cerebral localization of sensations in general.

In this case, as in that of Mills and Keene, the postcentral region was certainly involved, but neither lesion was sufficiently limited to indicate the exact seat of the stereognostic sense.

DR. WARREN: The points of interest about the operation were in opening the skull. The difficulties in opening on a large scale have long been recognized. Surgeons tried first trephining with a large trephine and nibbling off with rongeur forceps, making a large hole. The disadvantage is that it leaves a large opening. Attempts were made to put the buttons back. That does very well with a small opening, but is not a very desirable thing with a large opening. Then came osteoplastic openings, and they were first done with a saw and afterwards with a chisel. These methods were all rather unsatisfactory because slow, and the chisel, although rapid, produced a tremendous amount of shock. I shall never forget the impression produced upon me by the profound shock occasioned by opening a skull in twelve minutes, so that I feel disinclined to again use that method of opening the skull. The instrument which I have here (the maker's name I am not familiar with) seems to have overcome this difficulty very nicely. All that is necessary is to make your incision through the scalp of the length that you want and not reflect the scalp from the bone, turn up one corner of the flap, and with a trephine opening of small size start in with this nibbling instrument, the small point going in under the edge of the bone, taking slight turns one way and another; thus you cut a swath in the bone of the shape you wish, and then with elevator you pry up the bone; it cracks across the base easily and is turned back with the flap. This incision exposed the fissure of Rolando, and although we found, on turning back the dura, no tumor, as we hoped, Dr. Walton suggested I should make a puncture with a trocar at a certain spot, the ascending parietal convolution, and on doing so a test tube full of clear serum came out from a cyst less than $\frac{1}{2}$ inch from the surface and $\frac{1}{4}$ to $\frac{3}{8}$ of an inch from the surface of the brain. The finger was passed in, went forward; it seemed to be superficial over the ventricle. It was afterwards drained by putting a small piece of Dr. Harrington's tape drain in, leaving it there, sewing up the dura mater and turning back the flap, sewing that up and allowing the tape to come out at this point. Afterwards gutta-percha tissue was inserted as a drain which does not dry up and allows the fluid to escape. Drainage was kept up ten days and then the small hole was allowed to heal.

DR. WALTON, in answer to a question, said: I think the prognosis is extremely doubtful. The cyst may refill and again the cyst may, I suppose, be merely a part of an underlying tumor; this proved to be the case, for example, in the case of Mills and Keene to which I have alluded. In this event the tumor will continue to grow. The future is not very brilliant, excepting that the cyst may of course entirely heal up, and even then we could hardly expect complete recovery of motion, though we might that of sensation.

DR. H. H. A. BEACH presented a case of

OPERATION FOR THE REMOVAL OF A FOREIGN BODY IMPACTED IN THE ESOPHAGUS FOR MORE THAN TWO WEEKS.

CASE I. The patient, a boy eight years old, while playing, was carrying in his mouth a circular piece of tin $\frac{1}{4}$ of an inch in diameter. It slipped into the gullet and became fixed at a point just below the episternal notch, as shown by the x-ray. Soon after, it became impossible for him to swallow solid food. Until his admission to the hospital he lived on liquids. The duration of the impaction suggested the possibility of ulceration from pressure and the inadvisability of attempts at removal by instruments passed through the mouth. External esophagotomy made it possible to reach the coin-shaped obstruction with the tip of the finger and to remove it with forceps. At the same time two fragments of undigested meat presented in the wound and were removed. They may have protected the mucous surface from the sharp edge of the tin during the impaction. The gullet wound was closed by kangaroo tendon, the external wound by provisional sutures enclosing a gauze wick for a few days. He was fed by nutritive enemata for ten days and then beginning with a spoonful of milk his diet was gradually increased to solid food. Discharged well in seventeen days.

BACKWARD DISLOCATION OF THE ULNA; FRACTURE OF THE EXTERNAL CONDYLE OF THE HUMERUS; FRACTURE OF THE RADIUS AND ULNA NEAR THE WRIST JOINT.

CASE II. The whole arm was livid and swollen. The patient, a boy of fourteen years, who had fallen 15 feet from the branch of a tree. Unsuccessful attempts at reduction had been made under ether.

The condition of the arm contraindicated any prolonged manipulation. An x-ray examination showed unmistakable dislocation. Under ether, I found it impossible to adjust the dislocation from some unusual impediment which could only be disclosed by an internal examination of the joint. The arm was prepared and a straight incision of 5 inches was made, as though excision of the joint was to be done. The tendon of the triceps was split and the joint opened. The external condyle of the humerus was fractured and impacted so as to prevent the reduction of the dislocation. I was obliged to dissect off the outer half of the triceps tendon from the olecranon to the point where the posterior ligament joins the orbicular, then pushing the external condyle forward and with a blunt hook pulling backward on the inner side of the shaft of the humerus, the articular surface quickly snapped into the sigmoid notch and the movements of the joint became perfect. The wound was carefully cleaned and tightly closed. The radial and ulnar fractures were set and an elbow splint applied. The fractures have united, the wound has healed and an x-ray picture shows the dislocation reduced. Motions: Rotation good, but slightly limited at the wrist. At this time has about one-half power of extension and very good flexion; is gaining.

RETENTION OF URINE FROM OBSTRUCTION BY THE THIRD LOBE OF THE PROSTATE GLAND.

CASE III. The patient, a man of sixty years, entered with a history of more or less difficulty in urinating for nearly five years. Lately he had grown much worse in frequency and pain, and upon entrance the retention was complete. He was easily relieved by catheters, but only for a few hours. As his temperature was showing some sensitiveness to the instrumentation, it was thought best to relieve his bladder by constant drainage; this was carried out for eighteen days. Upon the removal of the catheter retention again occurred and his temperature again began to rise. His prostate gland felt through the rectum was unusually small. Upon the withdrawal of a sounder (for stone) there appeared to be a ring of tough fibrous material at the neck of the bladder, that suggested a teething ring in shape and consistence. Believing that a division of this structure would relieve his obstruction, I injected a solution of eucaine B. and passed the Bottini instrument, dividing the anterior neck 1 centimetre, the lateral 2 centimetres, and as I could not make an obstruction posteriorly upon withdrawing the instrument, did not divide him posteriorly. He had little or no pain, passed an ounce of blood, but his retention continued. I then made a suprapubic section and finding a valvular projection of the size of the end of the thumb which would allow entrance to, but obstruct exit from, the bladder, crushed it by two lateral constrictions and removed it with scissors. The bladder was drained and his recovery has been uneventful. He now has from 3 to 4 drachms of residual urine, and passes it once in about three hours, without catheter.

DR. R. H. FITZ reported

A SERIES OF CASES ILLUSTRATIVE OF THE CLINICAL IMPORTANCE OF BACTERIOLOGICAL EXAMINATIONS,

in which the diagnosis and prognosis were influenced largely by the bacteriological examinations made by his assistant, Mr. C. H. Dunn, who demonstrated the results of his investigation.

Three of the cases were of inflammation of the respiratory apparatus, and the examination of the sputum showed in one a pneumococcus pneumonia, in the other a pneumonia from Friedländer's bacillus, while in the third the influenza bacillus was the organism concerned.

CASE I. The patient, a boy of seven years, was sent to the hospital as a case of empyema following a kick in the back two weeks earlier. The physical signs were those of solidification of the right lung and the vocal and respiratory sounds were feebly transmitted from the lower lobe. On the day of entrance the temperature was 103° F., the pulse 140, and the respiration 70. The chlorides were much diminished; the blood examination gave 50,000 leucocytes and the sputum showed many pneumococci without tendency to form chains and often contained within leucocytes. The diagnosis of a late stage of pneumococus pneumonia was based upon the bacteriological examination. The crisis, with immediate improvement, began on the day after entrance, and the boy promptly recovered.

CASE II. The patient was a woman, fifty years of age. After two days of malaise she was attacked with cough, dyspnea and sharp pain in the lower right chest, for which she sought medical aid on the following day and was immediately sent to the hospital. On her arrival there were dulness, continued into flatness over the lower right lobe, distant respiratory sounds and broncophany with many fine moist râles at the end of inspiration. Temperature 102° F., pulse 120, respiration 45. The chlorides were absent and the blood count gave 14,000 leucocytes. The liquid, bloody sputum showed a prevalence of Friedländer's bacilli with occasional pneumococci. Death took place on the sixth day after entrance, the patient remaining intelligent and comfortable until the end. The prognostic importance of the presence of Friedländer's bacillus in the sputum thus was confirmed.

CASE III. The patient, a woman of twenty-seven years, was confined to the bed for three days before entrance on account of weakness, although there was also general malaise. There had been no coryza. On the fourth day she entered the hospital suffering from painful cough, dyspnea and cyanosis. Temperature 104° F., pulse 110, respiration 30. There was dulness of the lower right back without modification of respiratory and vocal sounds, but a limited friction sound was heard in the right axilla. On the following day the rub disappeared, the respiratory and local sounds became distant and numerous fine, moist râles appeared in the dull area. The chlorides were much diminished; 12,000 leucocytes were found on examination of the blood. The reddish-brown sputum contained numerous influenza-bacilli within and between the leucocytes. The case followed the course of an atypical pneumonia. Although the temperature remained high for several days and the respirations were from 30 to 50 per minute, the case progressed favorably. Three days after her admission to the hospital there was a discharge of offensive sputum which persisted for a number of days and at the end of a week the sputum contained elastic fibres. The physical signs of the pleuropulmonary disturbance gradually disappeared.

CASE IV. A fatal case of acute meningitis is re-

ported in which the etiology first was made clear after death, although a post-mortem examination was not held. The patient was a girl four years of age, whose illness began with vomiting, followed on the next day by frontal headache and pain in the ears and abdomen. Two days later she left her bed and went to school, but returned weak and cyanotic. On the seventh day her mother noticed that there was diminished use of the left arm and leg. On the eighth day she entered the hospital with these extremities completely paralyzed. Temperature 102° F., pulse 120, respiration 40. The examination of the blood showed 19,000 leucocytes. At the end of a fortnight in the hospital the child died. During this time she remained in a condition of stupor, but suffered from occasional atypical convulsions involving the head and extremities and from inconstant strabismus. Feeding through a tube was necessary. The head was not retracted, nor was there any hydrocephalic cry. The pupils were symmetrical and reacted normally to light. The examination of the ears showed somewhat retracted membranes, which were punctured without any relief. Kernig's sign was absent. The examination of the chest was negative and there was no elargement of the spleen. The etiology of this case was made known after examination of the fluid obtained from the spinal canal by lumbar puncture after death. It proved to be one of sporadic meningitis from pneumococcal infection.

IDIOPATHIC DILATATION OF THE COLON; CHRONIC RHEUMATIC ARTHRITIS; CHRONIC MITRAL ENDOCARDITIS; HEMIPLEGIA; EMBEDDED NEEDLE.

DR. FITZ showed a patient who was admitted to the hospital with the diagnosis of an abdominal tumor, but who was interesting also from a complication of diseases. The enlargement of the abdomen, which first attracted attention during the summer of 1890, resembled that of a woman seven months pregnant, and was found to be due to a persistent dilatation of the sigmoid flexure made prominent by contraction of the abdominal muscles.

The patient, an Englishwoman, single, forty-four years old, had acute articular rheumatism twenty years ago and was confined to her bed for six weeks. Nine years later, after an intervening period of good health, she suffered for two years from arthritis involving many of the joints and causing permanent flipper hands, partial dislocation and impaired mobility of the distal phalanges of two fingers of the left hand and a stiff knee and ankle. This illness had been diagnosed in England as rheumatoid arthritis. She was treated in various hospitals in Bath and elsewhere and was bedridden most of the time. The radiograph of the hands showed no deformity of the articular ends of the bones, but a piece of a needle, more than an inch in length, was apparent in the palm of the right hand. The patient had no recollection of the passage of a needle through the skin within the last fifteen years. She had never suffered discomfort from the needle. Nine months ago, having been constantly at work since her emigration to this country in 1892, the right arm and half the face became paralyzed and the speech was disturbed. She speedily recovered from the attack. At present there is a systolic murmur confined to the apex, but there is no enlargement of the heart and there have been no symptoms of cardiac insufficiency.

DR. SHATTUCK: Does that disappear or stay all the time?

DR. FITZ: It persists.

DR. RICHARD C. CABOT: How do the bowels act?

DR. FITZ: She has had more or less tendency to constipation, but not sufficient to cause any particular distress.

DR. F. C. SHATTUCK: Is the colon involved?

DR. FITZ: No; the sigmoid itself is large.

DR. C. A. PORTER reported a case of

OPERATION FOR GUNSHOT WOUND.

I should like to speak of a case on which I operated late this afternoon, to show the brilliancy with which Mr. Walter Dodd can make a diagnosis with the x-rays, for I think it is doubtful if we all recognize how valuable a man he is to us. A man entered the accident room this afternoon who had shot himself with a 32-calibre revolver in the head just above the right parietal eminence. It was evident that the bullet had entered the cranial cavity, as disintegrated brain tissue appeared in the wound. He was profoundly unconscious. There were no localizing signs or symptoms whatever, except perhaps a little swelling and redness just above the left ear.

Two plates were made by him which, as you can see, show the bullet distinctly in the left side of the brain. I will not repeat his calculations, simply because I do not understand them. I asked him *where* the bullet lay, and he said: "Trephine 1 inch in front of the ear and an inch above the zygoma on the *left side*." I did this without ether, using a ¾ inch trephine. The dura was tense and blue; the circle was enlarged to 1¼ inches in diameter with rongeur forceps, and the dura was opened. Blood clots under tension escaped; the breathing became quieter. Exactly in the centre of the opening was the clearly cut wound of exit from the brain, the bullet having passed quite through both hemispheres; as the clots came for the most part from in front, the opening was enlarged in that direction. The bullet had ricocheted from the skull without injuring the dura and glanced forwards and inwards. It was finally recovered in the centre of the anterior part of the temporal lobe, the little finger having been introduced along the track made by it. Gauze wicks were placed in the operation wound and that of entrance, and the man put to bed. He died, unfortunately, early in the morning.

DR. C. B. PORTER: I want to show this case as a case of fracture of the kidney, with bloody urine. He comes from the Norfolk Club, and was kicked in the belly by a horse, one hoof striking here (indicating), and one here (indicating). He came in the next morning and there was dulness through this line here (tracings upon body). Immediately after the injury there were pain, vomiting and bloody urine. At the time of entrance he was passing considerable quantities of blood. He was in a condition of shock. Examination showed dulness on the right side from the fourth rib downwards in the axillary line, tender, swollen, rigid abdomen. There was no change in this line by changing his position in the bed, but the interesting thing is that from the time of entrance his temperature commenced to drop, which led me to hold my hand. He went on uninterruptedly a number of days, his pain clearing up and this dulness

slowly and gradually disappearing. He got up one morning in a hurry and went to the bathroom and commenced to have another rise of temperature. I was afraid that he had lighted up the condition for which he came in and that we should have more bloody urine, but he did not have bloody urine follow that. He is now all right, has been discharged, and came in merely to be shown. It is interesting to see that in cases of fracture of the kidney it is possible at times for them to get well without operation. Another interesting thing in connection with this case is that from the same club last year I had another case of the same kind, which also got well without operation.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 8, p. 188.)

PROPHYLAXIS AND CONTROL OF LEPROSY IN THE UNITED STATES.

In a paper read before the American Dermatological Association in May, 1900, Morrow [3] asserts that the question of leprosy has been chiefly agitated by alarmists in the daily press, although the association was the first of the scientific bodies to call attention to its prevalence in the United States. By this and other means an act for the investigation of leprosy was passed by the United States Congress in April, 1898, which provided for the appointment of a commission of medical officers of the Marine-Hospital Service to investigate, and to report what legislation is necessary to check the spread of the disease. Nothing has been heard from this commission.

Dr. Morrow points out that our leper population has been largely increased by our territorial acquisitions. In Hawaii the native population is largely tainted with leprosy, as is the case with Cuba and Puerto Rico. The Philippines are one of the chief Eastern centres of leprosy which are continually exposed to fresh contamination by their nearness to China and Japan. The danger to us will come from the exposure of sailors and soldiers, of administrative officers, and those engaged in trade in the islands. The leprosy that has been found in Southern and Central Europe within the last century has come almost entirely from soldiers, sailors or administrative officers who have lived in the colonies where leprosy occurs. Of the 100 cases seen in Great Britain during the last ten years, all, with possibly 2 exceptions, contracted the disease in the leper colonies of England. Of 1,500 cases of leprosy in Spain the great majority were soldiers or monks who had contracted the disease in the Philippines, the Canaries, or Cuba. Additional opportunity for the spread of the disease is afforded by the open-door policy in China, and by the increased quickness of transportation. The Chinese have been the most active disseminators of the disease in modern times, and its spread in many countries can be traced to coolie immigrants.

The most obvious method of prophylaxis is to exclude all leprous immigrants, as far as possible, realizing that an absolutely perfect quarantine is impossible. It could be made more effective by international co-operation with countries where leprosy prevails, and by examining emigrants at points from which they embark. All immigrants from leprous families or from leprous districts should be registered and kept under observation for several years. This system is in operation in Hawaii with the result that of 2,600 Japanese laborers brought to Hawaii there have been only 6 cases of leprosy. Skilled experts as quarantine inspectors would also be an advantage.

With regard to leprosy as it exists within the United States, Morrow says that the leper is still an outcast in some parts of the country. No organized effort for the control of the disease has been made. Louisiana has provided a special asylum for lepers, but Dr. Dyer declares that its operation has been ineffective. The enforcement of the law of isolation has been more vigorous in California than in most other States, especially in the case of Chinese immigrants. In New York the health authorities have undoubtedly been hampered by the conflicting opinions of the medical profession with regard to contagiousness. Too much importance, in Morrow's opinion, has been laid on negative facts of contagion; as, for example, that lepers have lived for years in New York City without communicating the disease. The same could be said of tuberculosis or syphilis. In Louisiana there is much evidence of contagion, as shown by the great increase in the disease and in the large numbers of indigenous cases.

Morrow states his impression to be that leprosy is slowly increasing in the United States. Assuming therefore the necessity for the control of this disease, the question arises, whether it should be divided among local and State authorities, or be assumed by the national government. The results of the policy pursued by municipal and State boards of health have not been satisfactory. There has either been nothing done, or the patients have been cruelly imprisoned in a pest house. Co-operation between the different States would be necessary, and the expense is considerable, so that, the disease being very irregularly distributed, it would be hard to persuade the authorities of a State where there was very little, if any, leprosy to provide an expensive building for isolation. Morrow thinks that the control of leprosy should be given to the national government. Isolation or segregation is undoubtedly the most effective means for controlling this disease. It is necessary that all cases should be reported. Morrow thinks that a board of competent experts should be appointed to determine the existence of the disease or not, and he is not prepared to say that every leper should be seized and confined until he dies. A certain amount of discrimination in the selection of suitable cases for segregation should be practised. There would seem to be no reason for regarding an anesthetic leper without cutaneous or mucous membrane changes as dangerous to the community. Hygienic homes or asylums should be provided by the government, and should be made as comfortable and attractive as possible, giving the patients an opportunity for work or recreation. Segregation has never been thoroughly carried out in countries where it has been tried, on account chiefly of the opprobrium attaching to the disease and the desire for concealment. The removal of the popular prejudice against, and fear of, the disease, would render seg-

[3] Lepra, December, 1900.

regation much easier of accomplishment. "Instead of the traditional lazaretto with its veiled inscription, 'All hope abandon, ye who enter here,' asylums should be provided which would be suggestive in their surroundings and mode of management of a sanatorium rather than a prison. These institutions should hold out assurances of humane care, of medical treatment, and, if possible, a hope of cure."

"SARCOID" TUMORS OF THE SKIN.

Kaposi has proposed the name "sarcoid" as a provisional one for certain tumors of the skin that bear a striking resemblance to sarcomata in some respects while in others they differ from them widely. Kaposi includes under this heading: (1) Mycosis fungoides; (2) lymphodermia cutis; (3) sarcomatosis cutis; (4) sarcoma cutis proprie dictum. Fendt[5] would separate mycosis fungoides from this group, as a distinct, well-defined infectious disease, as well as lymphodermia cutis, which includes leukemia and pseudoleukemia cutis. He throws out also sarcoma cutis proprie dictum, as Kaposi includes in that the isolated sarcomata, and typical melanotic sarcoma. From sarcomatosis cutis he separates the multiple, idiopathic pigmented form, so that he has left finally only the form of generalized sarcoma, described as occurring on the trunk and extremities in the form of a hundred or more finger-nail sized and larger, bluish-red flattened or projecting nodules which are situated in the corium and subcutaneous fat tissue and are of firm, elastic consistency. There are no enlarged glands, no abnormalities to be found in the blood, or constitutional disorders. It is to this class then that Fendt wishes to restrict the term "sarcoid" tumors, a far different conception from that of Kaposi. This class of cases is the one that responds to the administration of arsenic, and about 25 such cases are said to have been reported. In most of them, however, an absolute cure could not be claimed. In several cases of this variety an intercurrent erysipelas caused the tumors to disappear.

Fendt reports a case observed in Herxheimer's clinic in Frankfort, that of a boy of sixteen, who had first observed six months previously a small, painless nodule on the right arm, which was soon followed by numerous nodules on various parts of the body. When seen nothing abnormal could be detected in the internal organs. Scattered over the body were fifteen to eighteen tumors, which were rounded and hard and had their seat chiefly in the subcutaneous tissue. A few of the tumors were of a violet color, most of them not colored. The patient was immediately treated with intravenous injections of arsenious acid, beginning with .01 daily, and increasing to .02. Examination showed the blood normal. There was a constant appearance of new nodules for a time. Later they ceased to appear and the old ones became smaller until at the end of five months they had all disappeared, without leaving a scar. Asiatic pills were substituted for the intravenous injections on account of local pain and swelling from the injections.

Histologically the cutis was found to be filled with a collection of large round cells, which were in part present as encapsulated tumors from which the connective tissue had in great measure disappeared, in part represented a true infiltration, with the connective tissue present, but greatly affected. In certain places the new-formed cells had undergone a certain amount of degeneration. Although the histological picture was that of sarcoma, it was not considered proper to class this definitely among the sarcomata, inasmuch as one of the laws of sarcomata that they grow progressively and do not disappear spontaneously was not followed in this case.

Another case from the Frankfort clinic is described in which a woman of sixty presented a diffuse infiltration of the skin of the eyelids and other parts of the face, and of the breasts. Over other parts of the body were scattered tumors of apparently different ages and different sizes, slightly pigmented and in some instances umbilicated. There was no enlargement of the lymph glands. The affection proved to be a lenticular cancer, and the case terminated fatally. It is thought that a case reported by Joseph under the head of sarcoid tumors was probably a cancer and analogous to this, and it is pointed out that the clinical diagnosis between carcinoma and sarcoid tumor may be very difficult.

The conclusions are reached: (1) That the form of sarcomatosis here described as sarcoid tumors of the skin ought not to be classed with the sarcomata, as they vary from sarcomata both histologically and clinically. Their etiology is at present obscure, but it is probable that they represent an infectious disease. (2) Carcinomatosis cutis can as a rule be excluded only by a microscopical examination.

TREATMENT OF CUTANEOUS AFFECTIONS WITH FINSEN'S CONCENTRATED LIGHT AND WITH THE X-RAYS.

Bie,[6] Finsen's assistant in his institute at Copenhagen, remarks that Finsen, in his first communication on the subject of concentrated light, indicated the superficial local bacterial affections as especially suited for treatment by this method. Lupus vulgaris was first chosen as a test, as it fulfilled these indications and also offered a good test on account of its obstinacy. The treatment is based on the capacity of the blue, violet and ultra-violet rays to destroy bacteria, provoke an inflammation of the skin and to penetrate through an anemic skin. It is not impossible that the inflammation alone may be the cause of the cure, and in any case it is remarkable that the two affections, apart from lupus, that have given the best results, epithelioma and alopecia areata, are not of known microbic origin. It is asserted that alopecia areata can be healed comparatively quickly by means of the light treatment, and the favorable result may be due to the active inflammation set up in the skin, as other inflammatory agents may also cause the hair to grow. The light has the advantage over applications of penetrating deeply into the skin.

Finsen has exhibited a number of patients in the Copenhagen Dermatological Society, to show that cutaneous epithelioma also may be healed by the light treatment. In this case also we do not know whether the beneficial effect is due to the destruction of possible bacteria, to the inflammation of the skin, or to both factors. In some of the cases of epithelioma so treated there was a sloughing of the tissues shortly after the beginning of the treatment. This is the more interesting since it has never been observed in more than 500 cases of lupus and other cutaneous affections treated in this way. Nor has

[5] Fendt: Archiv. f. Derm. und Syph., Bd. liii, H. 2 and 3.

[6] Dermatologische Zeitschrift, August, 1900.

necrosis been seen when normal skin has been treated experimentally; normal skin treated with strong concentrated light exhibiting redness, swelling, infiltration and usually the formation of bullæ, but never necrosis. Microscopical investigations have shown that when normal skin is exposed to a weak electric light there is a serofibrinous or cellular exudation, a swelling of the collagenous tissue and epithelium, and a liquefaction of these tissues; when a more intense light was employed there was a thrombosis of the cutaneous vessels, but the possibility that this was due to heat could not be fully excluded.

Of 16 cases of epithelioma treated in this way by Finsen, the treatment was without result in 3. Five patients were improved but not healed, 1 patient was apparently cured, but had a recurrence shortly afterward. Seven patients were cured. Of the 5 who were improved but not cured, in 2 the affection was seated on the eyelids, where it was feared to use a strong light. The 7 cases that were cured had remained without recurrence from six months to two and one-half years. Whether all these cases have been permanently healed it is of course impossible to say as yet. In all the cases that were cured the lesions were small and superficial and therefore well suited to the treatment. In the case of those previously treated, more was accomplished by this method than by previous measures. Finsen declared, in conclusion, that the method could be undertaken with hope of success only in the cases of epithelioma that were superficial and sharply bounded, and were situated in places suitable for the treatment.

Loewald[7] in the same number discusses the value therapeutically of both the concentrated light and x-rays. Until quite recently the inflammatory properties of light were falsely interpreted. So-called eczema solare was thought to be due to the heat rays, but doubt was cast upon this by the observation of similar phenomena after walking on snowfields, on high mountains and after exposure for a long time to a strong electric light. It was then found that the cutaneous inflammation was due, not to the heat rays, but to the chemical rays, especially the ultra-violet, and less prominently to the violet and blue rays. The green, yellow and red rays are not in the least concerned.

It has been proved that bacteria may be killed by light, and the best observers have found the ultra-violet, violet and blue rays again the most effective. Finsen succeeded, by means of concentration, in killing various kinds of bacteria in a few seconds. The results of the treatment of lupus by this method are said by Finsen and his pupils, and by Lassar, to be especially favorable. An hour's treatment daily causes an inflammatory redness and swelling, and then a shrinking up of the lupous tissue and the formation of a cicatrix. The treatment is painless, and no ill results have been observed. The long duration is a great objection, as light cases of small extent require from four to six months, the severer forms one to two years. The results in lupus erythematosus were variable. Of the 30 cases reported, in some there was permanent healing with good cicatricial tissue, while others were obstinate and showed a continual tendency to recurrences.

Turning to the x-rays, the unfavorable effects on the normal skin are not seen immediately after the exposures, but appear usually several weeks after the last sitting. They take the form of redness, with or without succeeding inflammation, decolorization of the skin, or increased pigmentation, transference of pigment toward the periphery, simple scaling of the epidermis, the formation of bullæ with serous or pustular exudation, edema of the corium and the formation of sloughs and ulcers. There is much pain and increased sensitiveness of the skin. The course is remarkably long. The hair often falls out and the nails may become brittle and fissured, or may be wholly lost. Histologically a thickening of the epidermis, increase of keratohyalin, atrophy and disappearance of hairs, follicles and glands have been noted. Gassmann observed peculiar changes in the walls of the vessels and a degeneration of the subcutaneous tissue. These unfavorable effects on the skin are estimated by Unna as occurring in about 1% of the cases.

In employing the rays therapeutically these unfavorable effects must be taken into account. Practically the danger from them can be reduced to a minimum in practised hands. In lupus vulgaris the first effect of the rays is a yellowish discoloration of the skin, which is soon followed by a dermatitis, characterized by redness and slight burning. If the rays are interrupted at the moment when the yellowish color appears, there is little succeeding dermatitis. When the dermatitis has disappeared, the rays are renewed, and healing follows with cleaning of the ulcers, cicatrization and separation of crusts. A number of observers have reported favorable results from this method, yet it does not protect from recurrences. It is, like Finsen's light treatment, of very long duration, but has the advantage over the latter that it may be used in very extensive cases. The cosmetic results are in every way equal to those of Finsen. Several writers report good results in chronic eczema with this treatment. The early results in many of these cases appear to have been better than the later, as there were recurrences and the rays seemed to lose their effect. No especially good results have been noted in psoriasis. Diseases in which a temporary baldness is desirable, as favus, sycosis, tinea tricophytina, have been favorably influenced.

With regard to hypertrichosis, Schiff, Freund and Jutassy have reported favorable results. It is, however, a very nice matter to adjust the application so carefully that no dermatitis is caused, and several cases of disfiguring scars have been reported. A brownish discoloration of the skin is noticed one or two days before the hair falls. The hair of brunettes becomes white just before it falls. Twenty to thirty sittings are necessary as a rule, but a single series of treatments is not sufficient, as a new growth begins two or three months later. It is said to be permanently removed if three or four sittings are practised at intervals of six weeks. The rays have also been tried in pigmented and angiomatous nevi, elephantiasis, etc.

Is has hitherto been impossible to explain the action of the Röntgen rays on the skin. Shutting out the heat rays and the light has not been able to prevent the dermatitis, or shutting out the electrical action also. It cannot, as experiment has proved, be ascribed to the action of the chemical rays. Experiments made to test the bactericidal properties of the rays in the case of lupus have not shown them to have this power.

What is the outlook for the treatment of cutaneous

[7] Dermatologische Zeitschrift, August, 1900.

affections by the x-rays? It is to be feared that the great hopes cherished by some will not be realized. In the majority of affections in which they have been tried, we possess numerous methods which give just as good results without the danger of injurious after effects. It is possible that much may be done by combining phototherapeutics with other methods. It cannot be doubted that the chemical rays of light, as well as the Röntgen rays, have a peculiar action on certain diseased conditions of the skin, and there can be no doubt that there is a certain resemblance in the method of action of the two kinds of rays. It is possible that this may prove a means of solving the secret of the Röntgen rays.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, January 1, 1901, FREDERICK PETERSON, M.D., president.

SPINAL ACCESSORY PARALYSIS.

DR. PEARCE BAILEY presented a man who last March had been operated upon for suppurating glands of the neck. During the operation the spinal accessory nerve had been cut. There had been immediate and complete paralysis of the sternomastoid and trapezius. About six weeks later the nerve had been sutured, with considerable improvement in the symptoms. During the past summer a weakness had appeared in the deltoid and in the muscles supplied by the musculospiral nerve. There had been considerable return of power. A fairly large incision had been made at the operation in the region of the mastoid. On inspection the shoulder on the affected side was seen to droop and the scapula hung away from the spine. The only anesthesia observed had been limited to the ear and over the right side of the face — an area corresponding to the supply of the great auricular nerve, which had undoubtedly been cut at the same time. There was now marked hyperesthesia over the distribution of this nerve. When first seen the position of the head had been slightly towards the injured side and a little downward.

DR. E. D. FISHER suggested that there was a psychical element in the case. He said that on pressing along the muscles of the arm slowly there was no reaction, but if done suddenly there was a spasmodic contraction of the muscles of this region.

DR. JOSEPH COLLINS did not think the whole condition had been explained by Dr. Bailey, for, in his opinion, there were symptoms of root involvement over a rather extended area. He could not understand how these could be explained by mere section of the spinal accessory nerve. The tic of the facial muscles and on either side of the neck, and the narrowing of the palpebral fissure, appeared to be associated with fibrillary twitchings. This would indicate a rather extensive involvement of the anterior roots in the cervical region. He would also like to know about the condition of the pupils.

DR. F. PETERSON said that he had seen this case before, and had been interested in the complications. He had seen the man before the appearance of the twitchings, and on first noting the latter he had been inclined to assume that it was hysterical. However, after having made the electrical examination he had felt sure that it was not hysterical, but a pressure palsy involving a number of nerves, possibly as a result of sleeping with the arm in an upward position.

DR. BAILEY said that the suppurating gland had been situated deeply underneath the sternomastoid. When first seen by him last April there had been a typical picture of paralysis of the sternomastoid and trapezius, but no symptoms referable to the arm, no tics and no functional disorders. The man had been completely incapacitated for work, and this probably explained his psychical condition. The irritative condition of the face was probably explicable by the formation of new connective tissue in the scar. As soon as his attention had been called to the pressure palsy he had been watched at night and prevented from sleeping on his arm, and this had resulted in immediate and decided improvement. It was probable that in time the man would get fairly good use of his arm.

FACIAL HEMIATROPHY.

DR. MAX MAILHOUSE presented a man, twenty years of age, without neurotic family history. Twenty-two months ago a discoloration had appeared on the right side of the face below the lower lid. It had begun as a pale depressed spot. When first seen by the speaker, the right side of the face had been much atropied, and the beard had been absent on this side. The mouth had been drawn to the right and the right half of the tongue very much atrophied. The apparent prominence of the right eyeball was due to retraction of the lower lid. The hair of the right half of the scalp was grayer than on the left, and was falling out. He had been losing his teeth on the right side. The nasal cartilage was wasted, and its tip was turned to the right. The muscles of mastication were also atrophied, and this was associated with spasmodic pain. There was a fibrillary tremor of the large muscles. The affected muscles reacted feebly to faradization, and normally to galvanism. No scleroderma was found. For the past two months there had been twitching of the muscles on the right angle of the mouth, and at times after laughing this angle would remain retracted. At such times there was a very tender spot situated in front of the ear. A blow of moderate severity had been received over the mouth ten years ago. No other etiological element could be elicited, and even this one seemed to have but little weight. The atrophy of the tongue seemed to be a strong argument for the theory that this affection is a trophoneurosis.

DR. C. L. DANA said that he had met with several such cases, and had found them all quite obscure. At one time the view had prevailed that it was a trophoneurosis due to some lesion of the trophic root — a condition very difficult to understand. In one of his cases there had been a typical diffuse trigeminal neuritis occurring in a woman of about forty years. The attack had begun with herpes and neuralgia, and had been followed by a general neuralgia in the course of the fifth nerve. After this there had been atrophy and some anesthesia, and finally a peculiar pitting of the face, like that from smallpox. In another case the trouble had begun, as it often did, with pigmented spots and neuralgia, and this had been followed by anesthesia in spots and a typical

progressive anesthesia involving all the tissues, including the masseter muscle and the bone. In this woman there had been deafness and some disturbance of vision on the affected side. It was difficult to understand how a trophic or central lesion would cause all these symptoms. A herpes was almost always a sign of peripheral trouble.

Another case had been in a woman, who had married at the age of seventeen. Her husband had died, it was said, of syphilis a few years later, though the woman denied ever having become infected. She had had a progressive facial hemiatrophy for a number of years, and had finally developed atrophy on the same side, affecting the arm and the leg. In none of his cases had there been anything indicating the true nature of the etiology. Perhaps the best explanation was that of a peripheral lesion as a starting point. He had obtained no definite results from treatment, perhaps because he had not been able to keep these cases under treatment for a sufficient length of time. If the trouble were peripheral, Dercum's idea of resecting the trigeminus seemed to be worthy of careful consideration.

DR. FRAENKEL asked if any difference had been observed in the behavior of the sweat glands on both sides of the face.

DR. MAILHOUSE replied that there had been less sweating on the affected side.

DR. JOSEPH COLLINS thought the disease could be explained just as well by a central as by a local lesion. He was inclined to think that the patient just presented had a lesion in the pons, in the area of central representation of the sympathetic nervous system in the pons. The lesion was probably a slowly progressive one, such as gliomatosis. There already seemed to be involvement of the motor nuclei of the medulla oblongata. The enlargement of the pupil would be explained by an irritation of the sympathetic which had gone on to paralytic effects.

PROGRESSIVE LINGUAL HEMIATROPHY.

DR. C. L. DANA presented in connection with the last case a rather rare form of progressive lingual hemiatrophy. It occurred in a man, twenty-six years of age, who had had the trouble three years, but had been otherwise in perfect health. The half of the tongue was gradually wasting away, and this was associated with fibrillary twitchings. The patient was a healthy young medical student without history of syphilitic infection or nervous heredity. It did not seem to him necessary to suppose that there was a gliosis, for Mendel had already shown that there is a change in the motor root of the trigeminus. Of course, these changes might be secondary to degeneration and partial destruction of the nerve.

DR. PETERSON said he was inclined to believe with Dr. Collins that some central lesion would best explain the condition. He had seen several cases, but all of them in a much earlier stage. In none of them had the tongue or the muscles of mastication been involved, or had they presented the same pupillary phenomena.

DR. MAILHOUSE thought the dilatation of the pupil might be explained by a similar process involving the sphincter pupillæ and causing weakness. Hoffmann had reported some improvement from the use of galvanism for half an hour daily.

NEW YORK OBSTETRICAL SOCIETY.

STATED meeting, Tuesday, January 8, 1901, the president, DR. H. J. BOLDT, in the chair.

DR. JANVRIN presented a

SPECIMEN OF LARGE MYOMATOUS GROWTH OF THE UTERUS.

The history was as follows: Patient single, forty years of age, menstrual history regular, no pain or bleeding. One month ago she had her normal period, which continued for several days, after which she began to flow freely. The hemorrhage was controlled somewhat, but she continued to flow for several weeks. Upon examination, at the end of three weeks, a large abdominal growth was found and the tumor removed which is here presented. Several cysts of the ovaries were removed at the same time. The case was of interest because no hemorrhage had occurred until the last month, although the mass was of large size. The reason for this lies in the fact that the tumor is probably of the cystic variety.

DR. H. J. BOLDT presented a

SPECIMEN OF TUBAL PREGNANCY,

in which the fetus of two months was found still within the tube. The great interest in this case lies in the fact that operation was performed as the process of tubal abortion was taking place. The abdominal extremity of the tube is dilated to a diameter of 1 centimetre. The uterine end is completely occluded. The tube is $2\frac{1}{2}$ centimetres in diameter at the thickest point. The patient had been bleeding for three months at irregular intervals, accompanied by cramp-like pains. During the week before operation the bleeding was very profuse, so that her physician (who thought that the patient had an intra-uterine pregnancy) said that she would abort. Large clots were expelled per vaginam. The patient was very anemic, and suffered great pain. In the abdomen there was a large quantity of blood which had escaped at different times, shown by the varying degrees of consistency; some clots were recent, bleeding continuing from the tube; while some were very firm and yellowish-red, the latter being on the floor of the pelvis. The bleeding for such length of time without completion of the abortion is the main interesting feature.

DR. VINEBERG said that the case was of great interest, showing as it did that we may get as profuse a hemorrhage from the uterus in ectopic gestation as from an intra-uterine abortion. He also emphasized the advisability of giving an anesthetic in cases of supposed abortion in order to make a careful diagnosis of the exact conditions.

DR. ABRAM BROTHERS mentioned the fact that some men thought it unnecessary in cases of tubal abortion to perform laparotomy, or to exsect the tube. But in cases like this one of Dr. Boldt's, where the diagnosis of tubal abortion is made, and where the patient may lose her life from exsanguination, the loss of blood occurring externally or in the peritoneum, one is justified in doing an abdominal section and removing the diseased tube.

DR. JANVRIN remarked that in many cases upon which surgeons are called to operate there is really a tubal abortion present, and no rupture of the tube itself. It is rare for hemorrhages to continue from a tube for two or three weeks without abortion being

complete. In most cases tubal abortion takes place inside of a week. In his opinion there was no question of the necessity for operation in any case where hemorrhage was going on.

DR. BOLDT said he believed that an impregnated tube should be treated as one of malignant disease and operation was therefore indicated.

Dr. Boldt read a paper entitled

I. THE DEFINITION OF SEPTICEMIA AND PYEMIA; II. THE INDICATION FOR VAGINAL HYSTERECTOMY AND FOR ABDOMINAL SECTION AND DRAINAGE IN PUERPERAL FEVER.

The writer, in reviewing the bacteriology of the ailments under discussion, said that while there were many varieties of streptococci, they could be divided into three classes or varieties, depending upon their virulence. In order to show the various definitions for septicema and pyemia and their mingling with the terms "septic infection" and "septic intoxication," thus creating confusion, the author quoted from a number of recent textbooks and dictionaries. So different in meaning are these various definitions that one is necessarily confused in choosing the correct term for a given pathological condition.

The best definition for septicemia is given by Coplin in his "Manual of Pathology," third edition, published in 1900. This is found on page 389 under the term "mycoses of the blood." He states that "in these the bacteria are present and multiplying in the circulating blood in which their products are generated. The intensity of the septic phenomena is augmented by the greater production of the poison, and not having even the barrier of protection afforded by the necessity of osmosis or absorption, they are enabled to engender lesions not presumed to occur, at least not to the same extent, in either sapremia or local infection. The embolic production of abscess is the essential element of pyemia, a disease recognized by surgeons as septicemia plus the infected emboli to which are attributed metastatic abscesses."

Delafield and Prudden, in their "Pathological Anatomy and Histology," fifth edition, state that "if from a focus of suppurative inflammation due to microscopic organisms, or if from a point of entrance of microscopic organisms without local reaction, the germs and their product become distributed through the body, inducing disease, the general condition is called septicemia. If in the invasion of the body by the microscopic organisms and their products new supplementary foci be established, it is now customary to designate the condition pyemia."

Dr. Boldt in his paper makes use of and favors the terms "acute" and "chronic" bacteriemia. He defines "acute bacteriemia" as a blood disease caused by microscopic organisms invading the circulation from some primary seat of infection. These infection-producing elements multiply so rapidly in the blood that the patient usually succumbs within five days after the disease begins. Usually the parasitic germs are streptococci pyogenes, but other pathological germs may be present also. Chronic bacteriemia (or pyemia) is likewise caused by the invasion of the system by microscopic organisms, but they disseminate from an infected thrombus. They are not diffused into the system in one large quantity, neither are they possessed with the same foudroyant virulence from a clinical standpoint. The production of the abscesses found in the condition called pyemia, and upon which the pathological difference between the two conditions depend, is due to the parasitic organisms finding a resting place outside of the blood circulation, and there giving rise to abscess formation. That there is a decided difference in the virulence of streptococci no one will deny; for instance, an incised wound of the finger may be infected with pus containing streptococci, and yet slight local disturbance result. On the other hand, during an operation on a patient with puerperal septic infection a small puncture of the epidermis may result in grave local and constitutional symptoms. When septicemia originates from infected thrombi, the infection elements, in the writer's opinion, are diffused to a great extent through the lymph channels. In acute bacteriemia there is usually but one chill, or in some instances there is none. The infection is intense and occurs suddenly. There is usually no repetition of the chill, because the rapidly multiplying organisms are already in large quantities in the circulation.

In chronic bacteriemia, on the other hand, there are repeated chills, due to fresh additions of septic organisms into the system. The pathological differences found on autopsy are well known, and harmonize with the manner in which the pathological germs are introduced into the system. It is impossible to distinguish septicemia from pyemia by a bacteriological examination of the blood or tissues. The author proposes for simplicity to limit the term "septic infection" to "local sepsis," reserving the term "acute bacteriemia" for what is ordinarily called septicemia, and the term "chronic bacteriemia" for "pyemia," so called.

Both acute and chronic bacteriemia are caused by microscopic organisms, but one is of short duration, the other long. So much then for the definitions of the terms to be used in the second part of the paper.

If the definitions and the pathological changes of acute bacteriemia are kept in mind, it should be evident that surgical intervention, like extirpation of the uterus, whether performed by abdominal or vaginal route or an abdominal section with drainage, must be futile. The author believes that it is a common error to report cases of local sepsis with severe constitutional symptoms as cases of acute bacteriemia, and thus much confusion is caused. In this way, it has been claimed that hysterectomy for acute bacteriemia has been followed by recovery. In the opinion of the writer, no such result ever has been or ever will be achieved by the surgical intervention alluded to for the cure of acute bacteriemia. If ever we should be fortunate enough to find a remedy for acute bacteriemia it will be found in the realm of serum therapy. The writer then said that this decisive assertion had been verified by clinical experience, extending over the past eighteen years. During this time he had performed all of the major operations on a large number of patients, yet he had not seen a single instance of recovery from acute puerperal bacteriemia (general puerperal sepsis), even if operations had been performed. In his opinion, the only effect from the operation on such patients was to hasten death. He had continued to perform the various operations for acute bacteriemia, thinking that it might be possible to save a life, because others had maintained that they had been successful, but it is evident to him that those who made these assertions were mistaken in the view as to what acute bacteriemia

(septicemia) is. There is no doubt, however, that the operations alluded to in the title of the paper are indicated in some patients ill with septic infection.

It is then of the greatest importance to know when to operate, and for what conditions. It is not easy to make exact diagnoses, but as a rule we can come to a correct conclusion after observing the course of symptoms for several days. Some patients ill with sapremia will show such severe symptoms that they simulate acute bacteriemia, but a short observation will usually decide the question. Occasionally patients who suffer from toxemia (sapremia) may show positive indications for the removal of the organ giving rise to the infection. To illustrate, B. S. Schultze [1] mentions the following case: The patient was delivered of a dead child on September 7th, the placenta did not follow, and upon traction the cord tore off. The physician could not reach the placenta to remove it. In the hospital it was found impossible to remove it, even under full anesthetics. She began to show symptoms of infection two days after delivery, and her condition became much worse. She had frequent chills and high temperature, so that it was evident that she would die if the cause of the infection could not be removed, especially as peritoneal irritation had begun. On September 13th a supravaginal amputation was made. The uterine bicornis was gangrenous nearly to the peritoneal cavity. The patient recovered. Another case was reported by Sippel,[2] in which the placenta was removed by manual extraction, but some placental fragments remained which Sippel could not remove because of the softened condition of the uterus. The patient was extremely anemic from blood loss, which was large. Septic endometritis resulted, and thirteen days subsequent to delivery supravaginal amputation was performed, recovery resulting. An infection by microscopic organisms had been added to the toxic infection by saprophytes, an occurrence not uncommon in sapremia. In such cases the reader favors total extirpation to supravaginal amputation, for the reason that the peritoneum can be protected from infection by approximate safeguards.

In cases of septic infection the author had based his blood investigations entirely upon smear preparations, obtained from a finger, and these were unsatisfactory. In 2 instances when streptococci were finally found, previous examination having proved negative, the patient succumbed. In 3 successful instances, in which indication for operation was based on clinical conditions, the blood examinations were negative, the second alone showing streptococci. It would not, in his opinion, be just to the patient to wait always for operation until positive evidence was found in the blood. The writer then mentioned a case which had occurred in his consultation practice in 1893. He had seen a patient three weeks after delivery who had shown all the symptoms of acute septicemia. The physician had not curetted, but relied solely on vaginal douches, stimulants and quinine. When seen by Dr. Boldt, the patient was greatly emaciated, temperature 103°, pulse 124 and feeble. There was no exudate in the pelvis, but the uterus was large, boggy and sensitive to touch. Examination of the interior of the uterus did not reveal the presence of placental tissue. After the examination the patient had a severe chill, temperature rose to 105.8°, pulse to 156. In view of the gradual sinking of the patient, the irregular chills, fever, the size and consistency of the uterus, the condition was diagnosed as septic metritis, and hysterectomy performed the following morning. The diagnosis proved correct, the tissues of the uterus tearing as if decomposed. The patient had no more chills, the highest temperature after the operation was 101°, and recovery was uninterrupted. Under similar conditions, even with a negative result of blood examination, the writer would adopt the same course today.

It is impossible with our present knowledge to lay down absolute rules for the performance or omission of the operation of hysterectomy, but for general guidance, I would advise the following indications for hysterectomy, if it is evident that less heroic treatment is useless:

(1) If after a full term delivery, or an abortion, there are no conception products in the uterus, and the patient has fever with exacerbations, chills, a small and frequent pulse (120 to 140 or more); if careful observation should show that the infection comes from the uterus alone, that organ being enlarged, and relaxed in its consistency; if there is no evidence of peritonitis, the parametria free; if streptococci are found in the uterus, and, especially, if the blood shows the presence of pathogenic germs.

(2) If there are decomposition products in the uterus, as in the instances reported by Schultze, Prochownik, Stahl and others, which cannot be removed satisfactorily per vaginam; if on doing a Cesarean section the uterus is found septic, then an abdominal hysterectomy is indicated.

(3) Abdominal section with drainage is indicated in diffuse septic peritonitis, when there is no evidence of an exudate in the pelvis.

(4) The adnexa are to be left undisturbed unless there is a positive indication to do otherwise.

In the discussion DR. VINEBERG said that he agreed with Dr. Boldt in his indications for hysterectomy, but that he personally preferred the abdominal route to the vaginal. He could not agree with the reader of the paper with regard to the definitions of sepsis. He thought there were no grounds for the introduction of the term bacteriemia. To his mind there was but one kind of infection. Many times, from neglect, putrid intoxication runs into acute septicemia, and the profession should be taught that each case of sapremia is one of septic infection from the onset, and that it may pass into acute septicemia. Infection with other bacteria, such as the bacillus coli communis, the staphylococci and the bacillus aërogenes capsulatus, have also been attended with fatal results.

DR. STONE congratulated the reader of the paper on his successful effort to pick out and define the different varieties of puerperal infection. To his mind, the profession was too apt to think that there was only one form of sepsis, and that the correct thing to do in each case was to curette. This he thought a great mistake, as many cases get well without curettage.

DR. BROTHERS thought the question of treatment depended upon the recognition of the presence or absence of local infection. This infection may be due not only to placental débris after delivery, but to some condition of local infection occurring previous

[1] Deutsch. med. Wöch., 1886, No. 44.
[2] Centribl. f. Gynäk., Bd. xvii, S. 667.

to delivery. He agreed with Dr. Boldt that if the diagnosis of acute bacteriemia can be made, hysterectomy or any other form of local treatment is contra-indicated. In his opinion, the terms "local sepsis," "acute bacteriemia," and "chronic bacteriemia" were well chosen.

DR. W. E. PORTER said he believed that many cases would not come to hysterectomy if persistent intra-uterine irrigations were properly carried out. In his experience the placental forceps were much better than the curette for the removal of retained secunda.

DR. MALCOLM MCLEAN had seen several cases in which lactation had given symptoms severe enough to make one strongly suspect septic infection, and he advised the greatest caution in making the diagnosis which would result in the performance of hysterectomy.

DR. G. L. BRODHEAD referred to those cases of hysterectomy for retained placenta which Dr. Boldt had reported, and said that, in his opinion, if retained placenta could not be reached by the usual methods, it would be better to incise the cervix in order to get more space in which to operate. Certainly the greater part of retained placenta could be removed in this way, and therefore hysterectomy would never be indicated.

DR. JANVRIN said he had never attempted to remove a uterus for acute septicemic action, but that he should like to ask Dr. Boldt to tell how one should know whether to perform abdominal or vaginal hysterectomy.

DR. BOLDT said that he would again refer to the excellent definition given by Coplin under the term "mycosis of the blood." We must recognize the fact that puerperal fever is always in a degree a septic infection. If fetid discharges come from the vagina, it does not necessarily mean that the case is a serious one. Patients with acute bacteriemia may have no fetid discharge, and yet there may be an intense septic endometritis. We must watch our cases for a number of days or several weeks, and if we find that all treatment has failed, the patient is steadily getting worse, no other cause for the chills, etc., can be found, where the parametria are free, and there is no peritonitis, where perhaps streptococci are found in the uterine secretions, then, under these conditions, we are justified in considering vaginal hysterectomy.

Abdominal hysterectomy should be considered only in cases where we are called on to perform a Cesarean section on a septic uterus, or where there is an intense septic intoxication associated with a septic endometritis, the patient's condition not improving under other treatment.

The reason why the placenta could not be removed in the case reported by Schultze was on account of there being a uterus bicornis. In the other case, quoted from Sippel, the general condition of the patient was such that it was not advisable to carry on intra-uterine manipulation further, so great was the danger of perforation.

In conclusion Dr. Boldt said that it required great judgment to decide in these cases what was correct to do, but that each must judge from his own experience with the aid of all the symptoms present. We should all endeavor to make exact definitions of the diseases that we are dealing with.

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THE NEEDS OF A MEDICAL LIBRARY.

SINCE the Boston Medical Library moved into its new building on the Fenway, a number of suggestions have been made looking toward improvement of the advantages it already offers the profession.

The most important improvement, after all, must consist in the extension of the book collection, and it is with a view to the possible strengthening of the collection where it is still somewhat weak that we venture to call attention to the fact that books may not only be given to the library, but may also be deposited as loans, under good care and without risk of loss.

The library should be in the future even more than in the past both the place for systematic study of medical literature, and the place where it may be convenient for the medical men to drop in, to skim over current journals or look up a given subject or a given point with the least possible loss of time.

To admit of this requires a reasonably complete representation of the total information in various lines of work, — not only the journals, archives and annals, but also those monographs and books of reference which from time to time condense the scattered information of the periodicals in quickly accessible form.

The Medical Library, through the quarter century of its existence, has especially striven to present contemporaneous literature. In this it has been, as we all know, notably successful. During this period many books other than periodicals have been collected (nearly 15,000), but the collections of special works and books of reference are still somewhat deficient.

In the past the limited funds of the library have not allowed any considerable purchases, and the lack of accommodations has not encouraged gifts. The lack of funds continues, the more felt owing to the expenses incident to the change of quarters, and the library cannot, for the present at least, set aside any adequate fund for the purchase of books; can, in fact,

do little more than keep up its periodicals. Today, however, there is no lack of room or of facilities for keeping and handling books.

Undoubtedly the library's need will be met to some extent by gifts. Special libraries have been presented; there are already two funds to provide for purchasing special classes of books, and one of the specialists' clubs is now considering the question of helping to keep up the shelves representing its specialty.

But apart from this there is an opportunity for individuals to give valuable aid with a minimum of self sacrifice. Hundreds of volumes that the library does not possess lie unused on the shelves of private individuals. Many medical men, too busy to be bibliophiles, buy sets of reference books or send for special works or monographs, and after the present need for them has gone by rarely look at them, often hardly know where they are.

The library is ready and anxious to receive such books, not only as gifts, but as loans, to keep them safely, and, if need be, to restrict or prohibit their circulation as the owner may desire. In this way the owner can share with others what he little uses, and his books will be safer and in many cases more accessible, even to him, than if they lay unclassified, uncatalogued, on his own shelves.

It is not supposed that whole libraries will be so deposited, but it is hoped that this suggestion may lead to the depositing of many single volumes and sets not now in the library and not accessible. If this suggestion bear fruit and be responded to, many gaps in the present collection will be filled and we shall all be the richer in opportunity to learn. It is a chance to cooperate in the furtherance of a cause with which all are in sympathy.

GOOD BREAD AND SANITARY BAKERIES.

It is scarcely necessary to state that bread is one of the most important, possibly the most important, of all articles of diet. Its universal use, on all occasions, and at every meal, by all classes of people makes it imperative that it should be made not only of wholesome materials, but also under strict sanitary conditions. In 1896 a statute was enacted in Massachusetts providing for the regulation of bakeries, with special reference to their sanitary conditions, and placing them under the supervision of local boards of health. This legislation was a step in the right direction, but an important provision was omitted, to which considerable attention has been paid in the sanitary investigations of other countries, — the provision that no bakery shall be maintained in an underground room or apartment. It is quite clear that the important sanitary conditions of good ventilation, light, dryness and perfect drainage can never be so well secured below the surface of the soil as above it, and all these conditions should be maintained in a good bakery. This question has provoked lively discussion in English journals, as is shown by the following extract from the *Local Government Chronicle*, London, February 2d:

Scarcely a week passes that we are not called upon to part with one or other of our most cherished illusions. We have long known that typhoid lurks in water, milk and shell fish, but until recently few of us suspected that we were drinking arsenic in our beer. Still fewer of us have as yet regarded our daily bread with suspicion. We have been taught from our infancy that bread is "the staff of life," and it is, therefore, somewhat disconcerting to learn that Drs. Waldo and Walsh have cultivated thirteen different species of microbes from newly-baked London loaves, and that Surgeon-Major Rennie has traced two outbreaks of typhoid fever amongst our soldiers in India to the agency of bread baked in the native bazars. It is no new thing for us to hear that the majority of our urban bakehouses are underground; that they are very dirty and insanitary, and that the journeyman baker has a very bad time in them; but the majority of us have derived some satisfaction from the reflection that, bad as its surroundings might have been, and serious as might be the discomforts of those engaged in its production, our loaf has been purified by fire before it reaches us. If, however, the statements made in *Fabian Tract*, No. 94, entitled "Municipal Bakeries," and published last month, are to be relied upon, we can no longer feel assured that this is the case. So far we have not heard of any authentic case of disease having been communicated by bacteria from bread in this country, but several sanitary experts seem to be of opinion that insanitary bakehouses, of which we have long known there are a considerable number in all our large towns, constitute a source of danger to the public health, which it is very desirable to remove. The medical officer of health for Manchester is "strongly of opinion that the time has come when a period should be put to the existence of cellar bakehouses." Without fully endorsing this opinion, we fear there can be little doubt that sufficient attention has not hitherto been paid to the sanitary condition of urban bakehouses, and to the miserable condition of many of those who work in them. Most of us would prefer that our bread was made in clean rather than in dirty bakehouses, and it is not pleasant to hear that journeymen bakers are rarely to be found above forty five years of age; that from the surroundings in which they work they are bound to suffer from lung diseases and anemia, to say nothing of "baker's itch," rheumatism, erysipelas, and other complaints; that their hours of work are exceptionally long, and that they are specially prone to suicide.

MEDICAL NOTES.

Vital Statistics of Havana for January, 1901. — The sanitary improvement heretofore noted continues during this month. It will be seen that the number of deaths, 476, is the smallest that has occurred in any January in Havana in the last twelve years, the next lowest being that of January, 1890, when there were 486 deaths, the highest being that of January, 1897, when there were 1,556 deaths and an average of 829 deaths. In comparing the death rate, there is a still better showing. The rate for this month, 22.75, is considerably less than the lowest for the past twelve years, 1894 being the next lowest, with a rate of 27.36. Yellow fever has decreased

from 62 to 24, and the deaths from this cause, from 20 to 7. The number of deaths is kept up by the increase among the deaths from tuberculosis, which about balances the decrease in deaths from fevers.

DIPHTHERIA ANTITOXIN INFECTED WITH TETANUS. — According to the *New York Medical Journal*, 20 deaths from tetanus were reported recently in cases which had been treated with a particular lot of diphtheria antitoxin made in Milan, Italy. A rigid governmental inquiry has been set on foot and the antitoxin seized.

DEATH OF PROFESSOR VON PETTENKOFER. — The death of Professor von Pettenkofer, of Vienna, is announced at the age of eighty-three.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, February 27, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 98, scarlatina 35, measles 51, typhoid fever 4.

DEATHS IN BOSTON IN 1900. — There were 11,678 deaths in Boston during the year 1900, an increase of 511 over 1899, and making the death rate for the year 20.82 per 1,000 inhabitants, as against 20.12 for the previous year. Consumption again leads in the total number of deaths from a single cause. There were 3,752 deaths of children of five years and under, which is 32.14% of the total number of deaths reported to the Board of Health for the year.

STATE LABORATORIES AS AIDS TO SANITARY WORK. — Dr. Samuel W. Abbott, secretary of the Massachusetts State Board of Health, read a paper before the Maine Academy of Medicine and Science, January 14, 1901, on the subject of "State Laboratories as Aids to Sanitary Work." Its sentiment received the heartiest approval of the academy, and to express its views upon the subject that body has caused a pamphlet to be printed and given a limited distribution, as a reason why the bill before the present legislature, asking for funds to equip a State laboratory in Maine, should receive favorable consideration.

A CENTENARIAN. — Mrs. Mary Welch, the oldest woman in Pittsfield, Mass., died last week at the reputed age of one hundred and two years. She came of a long-lived race, her father, John Fitzgibbons, dying at one hundred and five, and her mother one hundred and four. Mrs. Welch was born in Kinnaula, County Tipperary, Ireland, in 1799.

A PRECOCIOUS SUICIDE. — It is reported that a boy of thirteen has recently committed suicide in Connecticut, for the alleged reason, as given on a note found in his pocket, that he did not like his teacher, and "didn't want any more trouble."

GRADUATION OF NURSES AT BAPTIST HOSPITAL. — Three nurses have recently been granted diplomas from this hospital. At the exercises held on that occasion, Dr. Hugh Cabot, of Boston, and Dr. Alfred Worcester, of Waltham, spoke.

A POSSIBLE HOME FOR CONSUMPTIVES IN BOSTON. — It is said that certain persons in authority contemplate recommending the use of the Marcella Street Home for incurable cases of consumption.

NEW YORK.

CLAIM OF AN INSURANCE COMPANY UPHELD. — The Connecticut Mutual Insurance Company, in its defence of a suit by Jennie Louis to recover upon a policy issued by it in June, 1895, upon the life of her husband, Joseph Louis, claimed that the policy was void, because Mr. Louis's death, which took place in 1896, was caused by suicide. The policy contained a provision that the company did not assume the risk of self destruction, except upon satisfactory proof that the insured was so far insane as to destroy his responsibility. On the proofs submitted at the trial the jury gave a verdict for Mrs. Louis and that decision has now been upheld by the Apellate Division of the Supreme Court of New York. Justice Ingraham gave a dissenting opinion, holding that there should be a reversal because, in the application for the insurance, facts had been suppressed by the assured which were material in determining whether or not the insurance should be given.

SMALLPOX. — While the public apprehension of smallpox seems to have subsided, the disease has by no means disappeared, and on February 20th no less than 13 new cases were reported. The Health Department officials state that at present they are vaccinating only about 30 persons a day in Manhattan, while a few weeks ago the daily number of vaccinations was 2,000, and they fear a decided increase of smallpox from the indifference of the people. In the town of Woodbury, Gloucester County, N. J., where 3 cases of smallpox have occurred, there is much public excitement. All the Sunday and day schools have been closed by the health authorities, and 4,000 persons have been vaccinated within the past few days.

CARE OF MOTHERLESS INFANTS. — In the twenty-eighth annual report of the State Charities Aid Association, just issued, is given a full report, by the joint committee on caring for motherless infants, in regard to the institutions for children on Randall's Island. Owing to the work of the association, and to new provisions in the rules adopted by the State Board of Charities, the city has been saved over a million dollars during the last five years in caring for its destitute children. The report of the committee on New York County shows many improvements in the charitable institutions in the city and on Randall's and Ward's Islands during the past year.

SANITARY CONDITION OF SING SING AND AUBURN PRISONS. — In his annual report the State superintendent of prisons directs renewed attention to the utterly bad sanitary condition of Sing Sing and Au-

burn prisons, which are now more than seventy-five years old. He states that the evils, which are so serious as to demand immediate attention and prompt relief, if these structures are to be continued in use, have been repeatedly reported to the legislature, but no provision has been made for reconstruction or improvement.

BILL FOR ABOLITION OF PRESENT STATE BOARD OF HEALTH. — The Assembly has passed and Governor Odell has signed the bill providing for the abolition of the present State Board of Health, and substituting for it a single commissioner of health, to be appointed by the governor within twenty days after the passage of the act. The annual salary of the commissioner, who must be a physician of at least ten years' experience, is fixed at $3,500.

CHANGE IN NAME OF MONTEFIORE HOME. — The directors of the Montefiore Home for Chronic Invalids, in order to designate more specifically the work of the institution, have had its name changed to the Montefiore Hospital for Chronic Diseases.

SITE FOR RED CROSS HOSPITAL AND TRAINING SCHOOL FOR NURSES. — The Red Cross Hospital and Training School for Nurses has purchased, for $100,000, a site for a new building at 100th Street, facing the west side of Central Park.

Obituary.

J. H. LINSLEY, M.D.

DR. J. H. LINSLEY died at his home in Burlington, Vt., February 17th, at the age of forty-one, of meningitis. Dr. Linsley is survived by his wife and two children.

He was the only son of the late Hon. D. C. Linsley and grandson of Hon. Jo D. Hatch. He was born at Windsor, Vt., in 1859. He was graduated from the Medical Department of the University of Vermont in 1880, and later was in active practice up to 1887. His health failed about this time, and after a period of recuperation he went to New York City and was appointed instructor in clinical microscopy in the New York Post-Graduate Medical School and Hospital. One year later he was made director of the laboratories of histology, pathology and bacteriology. He was also pathologist to the New York Post-Graduate Hospital and the New York Infant Asylum. In addition, he did the pathological work of St. Luke's and the Presbyterian hospitals, during a part of the summer of 1889. In 1890 Dr. Linsley spent the summer in Berlin and took a course in bacteriology under Koch. He was also English secretary of the Section for Hygiene of the Tenth International Medical Congress held in Berlin in August, 1890. In the fall of the same year he again went to Germany as representative of the New York Post-Graduate Medical School and obtained some of Koch's lymph.

Returning to New York City, he gave the first address on the lymph treatment for tuberculosis in New York in the Academy of Medicine before the Medical Society of the County of New York. Later Dr. Linsley translated "Fraenkel's Grundriss der Bakterienkunde." Later he was made professor of pathology and bacteriology at the University of Vermont, and in some capacity he was connected with the Medical Department of the university for many years. He served as city physician of Burlington for three years, and as health officer for the same period. He was also a member of the Board of Pension Examiners for Chittenden County. On the establishment of the State Laboratory of Hygiene he was made its chief, and in that capacity he had done most useful work.

Correspondence.

[From our Special Correspondent.]

MEETING OF THE THIRD PAN-AMERICAN CONGRESS.

HAVANA, February 13, 1901.

THE third meeting of the Pan-American Congress, held at Havana during the week beginning February 4th, was noteworthy not only for the quantity and high standard of the scientific contributions, but equally for the hospitable courtesies and unique entertainments offered to the delegates by the local physicians, municipal and hospital officials and private individuals. Although the thermometer ranged from 80° to 90°F. during each day, this tropical heat, tempered by the cool trade winds, was made tolerable by the many devices within the houses, streets and *patios* for maintaining shade and the free circulation of air. The nights, moreover, were delightfully cool, and at no time was experienced that suffocating temperature so frequently prevailing in New York and Philadelphia during July and August; while the scrupulous sweeping and washing of all public thoroughfares, formerly so squalid, has served to banish offensive odors. Indeed the cleanliness of the streets, which reminded me of that of Paris under the empire, has proved contagious, so that floors and wainscots, finished invariably in marble, slate or tiles, were rubbed and polished in the various hospitals and institutions until they fairly shone.

In one of the smaller hotels, called Florida, in the Calle Obispo, originally occupied as a private palace, we found cool, clean apartments, good attendance and a most excellent cuisine.

For the meetings of the general sessions and of the sections ample provision was made in the great theatres, Tacón and Martí, the *aula magna* of the University and the lecture rooms of the adjacent Institute of Secondary Instruction. The total number of delegates amounted to about 400, and I heard some disappointment expressed at the rather meagre attendance of less than 80 physicians from the United States. One can safely predict, however, that at the fourth meeting of the congress, to be held in 1903, in the remote city of Buenos Aires, the representation from North America will be even smaller. The language generally employed was naturally Spanish. Indeed, as this is now the tongue of seventeen independent nations of the new world, with whom, as well as with our island colony, Puerto Rico, and the Philippines, we are steadily cultivating more intimate relations, a speaking knowledge of this idiom will soon be of importance to our people and especially to medical men.

An extremely favorable impression was made upon the visitors by the professional attainments and linguistic accomplishments of the Cuban physicians, many of whom, educated in European capitals, at New York or Philadelphia, would take a high rank in any country. The general sessions were presided over with dignity and tact by Dr. Santos Fernandez, an oculist of wide repute, and director of the histo-bacteriological laboratory inaugurated in 1887. The governor-general, Dr. Wood, who had held a reception at the Palace in the afternoon, spoke the opening words of welcome Monday evening, at the Tacón Theatre, and was unremitting, thereafter, in his attentions to the delegates.

At the time of the organization of this congress it was announced that its paramount function would be the study of those intertropical contagious diseases which menace the cities of the temperate zones. Of the many valuable papers on this topic none commanded more widespread

interest than the contribution to the etiology of yellow fever presented at the Section of General Medicine by Drs. Walter Reed, James Carroll, and Aristides Agramonte, assistant surgeons attached to the United States army of occupation. Their experimental demonstration that under strict quarantine, and with all other sources of infection absolutely excluded, 85.71% of all individuals bitten by purposely contaminated mosquitoes (*Culex fasciatus*) were infected, was received by their audience as conclusive and incontrovertible. As a result of these experiments, it is made evident that the specific virus is not directly transferred by the probosces of these insects from one individual to another; on the contrary it seems to undergo a distinct cycle of development within the organism of the mosquito before the latter is capable of communicating infection, and the period necessary for this process of elaboration is put at not less than twelve days. It is believed, therefore, that the danger of contracting this disorder may be virtually avoided by enclosing one's bed with a wire screen, a contrivance which I observed had been adopted by Gen. Lee in his summer palace at Mariano.

Another series of experiments seemed to indicate that articles of clothing and bedding contaminated with the excreta of yellow fever are absolutely incapable of conveying the disease, and hence that the disinfection of such articles is no more necessary than of the *fomites* of malarial fever; a theory too startling to be accepted on the rather limited evidence offered in its support. It is interesting to recall that this view of the propagation of yellow fever by mosquitoes was maintained by Dr. Charles Finlay, of Havana, in a paper based on experimental data which he reported at a meeting of the Havana Academy of Sciences held in 1881. On motion of Dr. Eduardo Wilde, minister of the Argentine Republic to the United States, it was resolved to constitute a Pan-American commission for the scientific study of the methods of propagation of yellow fever wherever endemic, and for the purpose of suggesting concurrent action on the part of all interested nations in carrying into effect such uniform sanitary restrictions as may lead to the suppression and possible extinction of this pestilence. When once this disorder is placed under control in the few seaports which at present constitute the foci of infection, then this continuous source of danger to the cities of North America will cease and a most expensive burden incident to quarantine regulations, disinfection, etc., will have been lifted from our maritime commerce.

At the closing general session held Thursday evening in the Martí theatre, the only paper in English was that on sanitation and quarantine by Dr. Walter Wyman, Surgeon General of the United States Marine-Hospital Service.

On Friday, the 8th, about 300 delegates, with their wives or daughters, accepted an invitation from Señor Pelayo to spend the day on the sugar plantation "Rosario," situated near Aguacate, about forty-five miles from Havana. Arriving at this town we found the entire school population drawn up with flags and banners at the station to receive us. Conveyed thence by private railroad directly to the villa, we were there graciously welcomed by the ladies of the household. After inspecting the cutting of the sugar cane and the large plant where the extraction of its sap and final conversion into sugar were accomplished entirely by machinery, we were conducted to a vast grove. There beneath the shade of a great variety of palm, fruit and other tropical trees unknown to us even by name, we were served an elaborate dinner made up of native dishes and choice wines. The favorite course with the Cubans was *el lechon*, or roast sucking pig, which we also found most palatable. By the nephew of the proprietor I was told that no less than $60,000 was paid to the contending parties during the recent rebellion to secure the preservation of this property from destruction by fire, a fate which brought ruin to most of the neighboring planters.

On the same evening a grand ball was given by the municipal authorities in the Tacón theatre, attended by 7,000 invited guests, representing the beauty, wealth and learning of the metropolis. Music was furnished by a well trained orchestra and large military band, while in the adjacent *patio* were served in profusion ices, *dulces* and wines.

At the reception given on the evening of Saturday to a limited number of delegates by Dr. and Señora Ygnacio Plasencia y Lizaso we had the opportunity of inspecting the interior arrangement of a large private mansion, and were amazed at the elegance, luxury and artistic taste displayed in the extensive offices, operating room and library of this distinguished surgeon, all designed on a scale which elsewhere would be thought adequate for a public institution.

A final excursion made to the province of Matanzas enabled us to visit the caves of Bellamar and the famous Yumurí valley, where we were fairly overwhelmed with acts of courtesy by many of the Cuban teachers whose acquaintance we had chanced to make at Cambridge during the previous summer.

A. H. N.

LITHOTOMY AND LITHOTRITY IN TURKEY-IN-ASIA.

MARDIN, TURKEY-IN-ASIA, January 18, 1901.

MR. EDITOR: In your issue of March 22, 1900, you kindly noticed the "247 cases of lithotomy," quoting from the *Missionary Herald*. You were kind to do me the honor. "Lithotomy" did not give its true meaning. I have since added *eleven* more to my number, and the way in which they are recorded is the way in which I have been dealing with the stone in recent years. I give the name *lithotrity* where I leave the débris to be carried off by the weight of the urine. I find it very suitable in some cases. The lithotomy cases are small children, for whom a small enough lithotrite has not been found.

The last year of the century, as it crowded itself into these regions, found Mardin contending with smallpox and a severe type of measles, worse than had ever been seen or heard of in this city. Its victims were counted by the hundreds, and some say thousands. It certainly was a very virulent form of a disease that they had always been accustomed to look upon as they would a slight cold, that comes and goes while the patient would not lose a meal or a day from his play. But now, scarcely a family but what were called upon to part with one or more of their little ones, some families three or four. No such epidemic of measles has ever been known in these parts. The whooping cough came in as a tailboard to the two preceding scourges, taking not a few of those left over from smallpox and measles.

Then, during the latter months of the year, a severe epidemic of erysipelas spread through the city, extending to the near and distant villages, no class or age escaping. That, too, carried off some of the less robust cases, and as the century unwinds the last coil of its great spring, we find about the only thing remaining of importance — and that is minor — chicken pox.

Notwithstanding the above account of sickness, suffering and death, to a foreign mind it would seem strange that the work of the medical man should be less than when these epidemics did not exist. For smallpox and measles who would call a doctor? They would only be laughed at. But towards the last, when so many were being taken, they began consulting the M.D., but only a few at that, so that on the whole I have a smaller number of cases to record than last year.

The work of the year has been heavy and tiresome, very few capital operations, but a large number of minor cases, requiring as much, or even more, attention than the capital cases. I often had 20 or more dressings a day to do for out patients, aside from the regular hospital cases, the dressings for the year amounting to over 5,500.

The same old story to repeat accounting for the decline in the medical and surgical work of the year — *poverty*, which becomes year by year more acute. A number of capital surgical cases were turned away because they could not

pay the amount asked of them for their stay in the hospital, so they went their way sorrowing at their fate, while we too sorrowed because of our inability to take them in.

Very truly yours,

D. M. B. THOM, M.D.

SHOULD A HOSPITAL CHARGE FOR INFORMATION ABOUT PATIENTS?

BOSTON, February 23, 1901.

MR. EDITOR: — On February 11, 1901, a patient of mine was admitted to the Massachusetts General Hospital. I had attended him about two days previous to his admission and had made a diagnosis of ruptured urethra and extravasation of urine. This diagnosis was concurred in by another physician who saw the case with me. Yet on account of the absence of retention of urine, the peculiar character of the swelling and the absence of other typical symptoms, the diagnosis was not beyond peradventure.

Four days following admission, I requested, by letter, of the superintendent the diagnosis made and operation performed. I received an answer confirming the diagnosis made before entrance, with a statement of the operation performed. Two days later I received a bill for "searching and copying record, $1.00."

Now, Mr. Editor, I consider this preposterous. A hospital of the character of this hospital, that has been generously aided by the State and generously endowed by public-spirited citizens, is not strictly a private institution. The State and citizens endowed this hospital primarily for the aid of the needy sick, and secondarily to educate students and physicians. It would seem a matter of common courtesy and in furtherance of one of its objects to supply this slight information when requested by the attending physician. I should even go further and say that the attending physician should be notified of any intended operation on his case and invited to be present.

It is not the amount to which I object, but the principle.

In view of the enormous advantages granted to the favored few composing the staff, it would seem that this privilege to the practising physician is infinitesimal.

I am pleased to add that the City Hospital has cheerfully and freely furnished such information for which its aristocratic and autocratic neighbor begs pay.

Very truly yours,

W. H. E.

NOTES ON X-LIGHT.

BOSTON, February 23, 1901.

MR. EDITOR: — The only answer I desire to make to Dr. Codman's criticism of my previous communication[1] is embodied in the following statement:

A pregnant guinea pig was placed in a closed metallic chamber hung by silk cords within a closed metallic chamber connected with the ground. This is the same arrangement for excluding electricity as a factor in the results which was used in the other experiments. The source of x-light was outside. Exposure to x-light killed the fetus. I limit the statement of these experiments to one guinea pig, and publish this note because pregnant women are being exposed to x-light to determine the size of the pelvis or to examine the condition of the fetus. I may add that I have known of a woman who aborted after exposure to x-light. What people fear is uncertainty; therefore, when a new agent is employed in medicine it is important to determine its power by experiment on animals. When we know the worst and can control the agent, we need not fear that patients will object to its use. Nothing is gained by criticising such experiments, for criticism is sterile, while experiment is fertile. An experiment can only be discredited by another experiment.

Very truly yours,

WILLIAM ROLLINS.

[1] Journal, February 21st, p. 197.

METEOROLOGICAL RECORD

For the week ending February 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A.M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	.0 P. M.	
S...10	29.89	22	28	16	53	37	45	N.W.	N.W.	15	18	C.	C.	
M..11	30.09	24	33	16	39	40	40	N.W.	W.	10	13	C.	C.	
T..12	29.72	25	30	20	86	45	66	W.	N.W.	8	30	N.	C.	.01
W..13	29.43	16	22	11	48	53	50	N.W.	N.W.	27	18	C.	C.	
T..14	29.34	16	22	11	61	54	58	N.W.	N.W.	25	20	C.	C.	
F..15	29.41	22	32	13	68	63	66	W.	N.W.	12	13	C.	O.	
S...16	29.57	34	41	26	65	64	64	N.W.	W.	10	13	O.	O.	
☞	29.64		30	16			56							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 16, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1389	417	25.19	13.53	1.72	.79	3.59
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	522	109	20.92	20.54	1.92	1.34	3.26
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	242	70	12.39	30.57	—	—	2.06
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	128	41	25.00	26.79	—	5.42	2.33
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	73	12	20.05	32.87	—	—	1.37
Boston	560,892	243	69	23.04	20.16	4.11	.82	3.29
Worcester	118,421	55	14	12.72	21.81	.18	—	—
Fall River	104,863	33	16	27.27	12.12	—	—	—
Lowell	94,869	45	4	8.88	33.33	—	2.22	2.22
Cambridge	91,886	27	9	22.22	40.70	—	—	7.40
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62 559	23	9	8.69	13.04	—	4.34	4.34
New Bedford	62,442	29	13	3.45	27.58	—	—	—
Springfield	62,059	25	5	12.00	32.00	—	—	—
Somerville	61,643	20	6	25.00	25.00	—	5.00	—
Holyoke	45,712	20	10	30.00	25.00	—	—	15.00
Brockton	40,963	13	1	—	38.46	—	—	—
Haverhill	37,175	28	4	14.28	10.71	—	—	—
Salem	35,656	12	1	—	16.67	—	—	—
Chelsea	34,072	11	—	—	—	—	—	9.09
Malden	33,664	10	2	20.00	33.33	—	—	—
Newton	33,587	14	1	50.00	—	—	—	7.14
Fitchburg	31,531	17	2	—	47.05	—	—	5.88
Taunton	31,036	9	3	—	22.22	—	—	—
Gloucester	26,121	2	1	—	—	—	—	—
Everett	24,336	6	3	33.33	16.67	—	—	—
North Adams	24,200	15	2	33.33	—	—	—	—
Quincy	23,899	10	5	70.00	—	—	—	30.00
Waltham	23,481	7	2	14.28	28.56	14.28	14.28	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	7	3	14.28	14.28	—	—	14.26
Medford	18,244	3	—	33.33	—	—	—	—
Newburyport	14,478	5	—	—	20.00	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 3,054; under five years of age 836; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 680, acute lung diseases 435, consumption 400, diphtheria and croup 92, diarrheal diseases 63, scarlet fever 46, influenza 44, typhoid fever 24, whooping cough 13, measles 8, cerebrospinal meningitis 6.

From whooping cough New York 4, Philadelphia 3, Boston and Somerville 2 each, Baltimore and Quincy 1 each. From cerebrospinal meningitis Worcester and Everett 2 each, Boston and Fitchburg 1 each. From scarlet fever New York 24, Philadelphia and Boston 10 each, Worcester and Medford 1 each.

From typhoid fever New York 11, Philadelphia and Pittsburg 7 each, Boston 2, Lowell, Lawrence, Somerville and Waltham 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending February 2d, the death rate was 16.4. Deaths reported 3,707: acute diseases of the respiratory organs (London) 323, whooping cough 104, diphtheria 69, measles 56, fever 33, diarrhea 30, scarlet fever 30.

The death rates ranged from 10.0 in Burnley to 26.4 in Norwich: Birkenhead 13.1, Birmingham 15.5, Blackburn 13.9, Bolton 14.1, Bradford 17.2, Brighton 15.4, Bristol 15.8, Cardiff 11.8, Croydon 12.4, Derby 11.9, Gateshead 24.1, Halifax 19.5, Hull 13.1, Leeds 16.4, Leicester 10.2, Liverpool 21.9, London 16.1, Manchester 19.6, Nottingham 17.0, Plymouth 17.6, Portsmouth 16.2, Sheffield 16.5, Swansea 18.5, Wolverhampton 19.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 23, 1901.

R. C. HOLCOMBE, assistant surgeon, detached from the "Glacier," and to duty with detachment of marines at Pollock, P. I.

J. W. ROSS, surgeon, retired, by Special Order, Department of Cuba, February 15, 1901, to report to the chief sanitary officer, City of Havana, for duty.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, March 4th, at 8.15 P. M.

Papers: Dr. Fred B. Lund will read a paper entitled, "The Surgical Treatment of Gastric Ulcer, with Report of Cases."

Dr. Arthur T. Cabot, "Idiopathic Abscess of the Kidney."

The committee appointed to consider the formation of an Academy of Medicine will report.

ARTHUR K. STONE, M.D., *Secretary*, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION. — The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, March 6, 1901, at 8.15 o'clock.

Paper: "Diagnosis and Treatment of Renal Tuberculosis," by Dr. F. Tilden Brown Discussion by Drs. F. C. Shattuck, A. T. Cabot, Alfred Worcester and Paul Thorndike.

F. G. BALCH, M.D., *Secretary*, 279 Clarendon Street.

LECTURES AT NEW YORK SKIN AND CANCER HOSPITAL.

A series of nine clinical lectures on "Syphilis" will be given at the New York Skin and Cancer Hospital successive Wednesdays, beginning March 6th, by members of the visiting and consulting staffs.

SARATOGA SPRINGS AS A MEDICAL MEETING PLACE IN 1902.

We have received a communication from a correspondent in Saratoga Springs, N. Y., suggesting that city as a most suitable place for the meeting of the American Medical Association in 1902.

RECENT DEATHS.

SENECA TOBIAS HYDE, M.D., M.M.S.S., of Dorchester, died at Hamilton, Bermuda, February 17, 1901, aged sixty years.

H. B. POTTER, M.D., of Lafargeville, Jefferson County, one of the most prominent physicians of Northern New York, died suddenly on February 17th, at the age of sixty-one.

BOOKS AND PAMPHLETS RECEIVED.

Drug Standardization Again. Reprint. 1901.

British Medical Association, Report of the Anesthetics Committee. July, 1900.

Boston Floating Hospital, History and Report, Season of 1900. January, 1901.

Inguinal Hernia. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati. Reprint. 1901.

Twenty-third Annual Report of the Board of Health of the City of Lowell for the Year 1900.

A Case of Paroxysmal Hæmoglobinuria. By William Judson Lamson, M.D., New York. Reprint. 1901.

Appendicitis. Ventral Hernia following Abdominal Section. By B. Brindley Eads, M.D., Chicago. Reprints. 1901.

Some Remarks on the Plantar Reflex, with Especial Reference to the Babinski Phenomenon. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1901.

Cyclic Albuminuria. By G. A. Sutherland, M.D., Physician to Paddington Green Children's Hospital, etc. London: The Medical Publishing Co., Ltd. 1900.

An Introduction to Physiology. By William Townsend Porter, M.D., Associate Professor of Physiology in the Harvard Medical School. Cambridge, Mass.: The University Press. 1901.

The Syphilis of Children in Everyday Practice. By George Carpenter, M.D. (Lond.), Physician to the Evelina Hospital for Sick Children, London. New York: William Wood & Co. 1901.

Medico-Chirurgical Translations. Published by the Royal Medical and Chirurgical Society of London. Vol LXXXIII. (Second Series, Vol. LXV.) London: Longmans, Green & Co. 1900.

Lupus Healed with Roentgen Rays; Report of a Case. The Treatment of Epitheliomas of the Skin, with Report of Cases. By William Allen Pusey, A.M., M.D., Chicago. Reprints. 1900-1901.

Fifth Annual Report of the Board of Managers of the Springfield State Hospital of the State of Maryland, Sykesville, Md., to His Excellency the Governor of Maryland. October 1, 1900. Baltimore. 1901.

The History of Ancient Gynecology. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon to the Benevolent Asylum Maternity Hospital, Sydney, etc. New York: William Wood & Co. 1901.

Charaka-Samhita. (Translated into English). Published by Avinash Chandra Kavira ua, Editor of Charaka-Samhita and of Susruta-Samhita (in original), with commentaries, etc. Calcutta: Saniel & Sons.

Diseases of the Anus and Rectum. By D. H. Goodsall, F.R.C.S. (Eng.), and W. Ernest Miles, F.R.C.S. (Eng.). In two parts. Illustrated. Part I. New York and Bombay: Longmans, Green & Co. 1900.

Studies in Human and Comparative Pathology. By Woods Hutchinson, A.M., M.D., Professor of Comparative Pathology and Embryology in the University of Buffalo, etc. Edited by Dr. Edward Blake. London: Henry J. Glaisher. 1901.

On Some Cirrhoses of the Liver. Being the Lumleian Lectures for the Year 1900, delivered before the Royal College of Physicians, London. By Walter Butler Cheadle, M.A., M.D. (Cantab.). Illustrated. London: Smith, Elder & Co. 1900.

Operative and Practical Surgery for the Use of Students and Practitioners. By Thomas Carwardine, M.S. (Lond.), F.R.C.S., Assistant Surgeon, Bristol Royal Infirmary. Illustrated. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1900.

The Essentials of Practical Bacteriology: An Elementary Laboratory Book for Students and Practitioners. By H. J. Curtis, B.S. and M.D. (Lond.), F.R.C.S., late Surgical Registrar, University College Hospital, London, etc. New York and Bombay: Longmans, Green & Co. 1900.

On the Use of Massage and Early Passive Movements in Recent Fractures and other Common Surgical Injuries, and the Treatment of Internal Derangements of the Knee Joint. Three Clinical Lectures delivered at St. George's Hospital. By William H. Bennett, F.R.C.S. Illustrated. Reprint. 1900.

The Present Position of the Treatment of Simple Fractures of the Limbs. An Address delivered in opening a discussion at the meeting of the British Medical Association, held at Ipswich, 1900. By William H. Bennett, F.R.C.S. To which is appended a Summary of the Opinions and Practice of about 300 Surgeons. Reprint. 1900.

An American Textbook of Physiology. By Henry P. Bowditch, M.D., John G. Curtis, M.D., Henry H. Donaldson, Ph.D., W. H. Howell. Ph.D., M.D., Frederic S. Lee, Ph.D., Warren P. Lombard, M.D., Graham Lusk, Ph.D., F.R.S. (Edin.), W. T. Porter, M.D., Edward T. Reichert, M.D., Henry Sewall, Ph.D., M.D. Edited by William H. Howell, Ph.D., M.D., Professor of Physiology in Johns Hopkins University, Baltimore. Second edition, revised. Vol. II. Muscle and Nerve; Central Nervous System; The Special Senses; Special Muscular Mechanisms; Reproduction. Philadelphia and London: W. B. Saunders & Co. 1901.

International Clinics: A Quarterly of Clinical Lectures and especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, etc. By leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U.S.A. With the collaboration of John B. Murphy, M.D., Chicago; H. C. Wood, M.D., Philadelphia; Thomas G. Norton, M.D., Philadelphia; T. M. Rotch, M.D., Boston; J. W. Ballantyne, M.D., Edinburgh; Alexander D. Blackader, M.D., Montreal; E. Landolt, M.D., Paris; Charles H. Reed, M.D., Philadelphia, and John Harold, M.D., London. With regular correspondents in Montreal, London, Paris, Leipsic and Vienna. Vol. IV. Tenth Series. 1901. Philadelphia: J. B. Lippincott Co. 1901.

Original Articles.

CLINICAL NOTES AND COMMENTS: CANCER OF THE EXTREMITY OF THE COMMON BILE DUCT.

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CASES of disease observed in the early anatomical stage, when few if any secondary lesions have developed, are the more instructive clinically and pathologically, as they are less impressive from their magnitude or intensity. This condition may be met with where a small initial lesion is so situated that a slight increase in bulk seriously interferes with some important function, and the consequences are as clear cut and decisive as in a laboratory experiment. In the following case the results cannot have been widely different from what would have come from an antiseptic ligature placed around the common bile duct.

A single woman, aged forty-eight, neither excessively stout nor the reverse, had enjoyed good health up to June, 1898. The appetite and digestion had been excellent. Repeated inquiries failed to disclose anything like attacks of gall stone. She had been in the country riding a bicycle and enjoying herself. One day she came home saying she was very tired and was going to bed. Within a day or two there was a loss of appetite, intense jaundice, and light-colored stools. Neither then nor at any other time was there any severe pain or tenderness on pressure. This condition lasted essentially unchanged until her death. In September there was some swelling of the legs, which later disappeared.

In February she had lost, say, 30 pounds of flesh, and was of a deep yellow color. The abdomen was much distended, and evidently contained considerable fluid. The liver was not to be felt below the edge of the ribs, nor could its dullness be detected there. Neither could the spleen be felt. The urine was scanty, although it had been increased somewhat after taking diuretics. The bowels were somewhat loose from the action of mild salines. The appetite was moderate but not absent, and so far, at least, as the absence of discomfort went, the patient enjoyed and apparently digested her food. The blood showed the red corpuscles a little less than 4,000,000, with the whites in normal proportion and normally distributed. There was no material change under any of the medications employed, including those of a clairvoyant, except that from the beginning of the ministrations of the latter the stools were described as becoming green and then black. That which I saw at this time was of a slaty grey, without any tinge of biliary color, and could have been described as green only under psychic stimulus. With nitric acid it yielded a reddish-yellow fluid, which in its turn gave a bluish precipitate with ferrocyanide of potassium, and was undoubtedly due to iron. The diagnosis received no light from supernatural sources. The pulse was usually in the neighborhood of 100, and the temperature at times a trifle above normal, although it was not regularly taken and charted. There was nothing in the least resembling a biliary fever. The tongue was nearly clean and the breath not offensive.

On April 24th she was tapped, and about 12 quarts of serum removed, which contained a large amount of albumin (2.5% dry), and gave a strong reaction for biliary coloring matter. The legs were a good deal swelled. She had "distressed spells." There had been several times specks and streaks of blood in the stools and sputa, and also some epistaxis, but never any severe hemorrhage. After this first tapping it was noted that palpation through the relaxed abdominal walls revealed nothing, but after the second, sixteen days later, there was to be plainly felt below the ribs what was supposed to be (and was) the liver, with the rounded end of the gall bladder below it. The projection of the liver increased somewhat, and after successive tappings its edge could be grasped through the relaxed abdominal wall by the hand for quite a distance without pain, and almost without the notice of the patient. There were in all eighteen tappings, about 12 or 14 quarts being drawn each time, the intervals gradually decreasing.

In September, the patient was seen by Dr. Arthur Cabot, with a view to the (very remote) possibility of painless impaction of a gall stone, and an operation was decided against.

Death occurred on October 15th, after nearly a week of diminishing consciousness and, at the last, convulsions, that is, sixteen months after the first symptoms.

The urine throughout was very deeply colored with bile, of high specific gravity, containing either no albumin or a mere trace, with a few casts, hyaline and epithelial. There was at one time a deposit of rather unusual crystals, consisting, as I was informed by Dr. Wood, of phosphate of calcium. Its quantity used gradually to diminish until a tapping, when for a number of days it was more abundant.

Autopsy took place twenty hours after death. Body was extremely emaciated. A pailful of fluid was found in the abdominal cavity. There were no adhesions in the neighborhood of the punctures, but a few slight ones between the liver, spleen and diaphragm. The omentum was much emaciated. A few flocculi of recent lymph were on coils of intestines and abdominal walls. Kidneys were normal. Spleen was a little larger than the average, but not soft.

There was nothing abnormal in the external appearance of the stomach or intestines. The gall bladder was enlarged, containing many gall stones, pearly white, angular, with colored tips. The interior was yellowish brown in the centre, growing gradually lighter toward the outside. They were largely cholesterin. The fluid contents were greyish and viscid. The lower part of the gall bladder was adherent to the neighboring liver substance, and could not be separated from it except by cutting. The cystic duct was not followed down to the junction. The biliary passages were enormously dilated within the liver, and also the

hepatic and common ducts, down to a point 2 inches from the duodenum where there was an abrupt narrowing. Below this point there was some dilatation but much less extreme. At the point of narrowing there was a small rounded tumor, the size of a medium bean, in or closely attached to the wall of the gall bladder between it and the hepatic duct, and pressing upon the latter. Further down there were some dense portions of tissue seeming on section much like cicatricial. The substance of the liver after the emptying of the ducts was flabby, and very dark-greenish brown. Its firm rounded feeling during life was evidently due to its distension by bile in the dilated ducts. The duct and substance of the pancreas were healthy.

The specimen was given to Dr. R. M. Pearce, at that time of the Harvard Medical School, for microscopic examination. He reported that there was a carcinoma of the papilla at the orifice of the common duct, and a lymph node in the immediate neighborhood. The cancer was very slight in amount, and might easily have been overlooked or mistaken without the microscope. In fact, the primary growth was overlooked at the autopsy and the lymph node supposed to be the primary. The whole amount of tissue involved was hardly as much as the last joint of one's finger.

Although this location of cancer is stated by many monographists to be very rare, a number of cases have been collected from the more easily accessible medical literature, periodicals, and especially from inaugural theses.

There is but little doubt, however, that cancer of the bile ducts is in reality somewhat more common than would appear from the older statements, and that many cases which would have been described as "obstruction" even so lately as fifteen or twenty years ago, have been brought by more careful microscopic methods under the head of carcinoma. This is rather interestingly shown by a comparison of titles in the earlier and later series of the "Index Catalogue" of the Surgeon-General's Library.

TITLES.	1ST SERIES UP TO 1881.	2D SERIES, 1881 TO 1897.
Bile ducts, obstruction and dilatation of.	7 dissertations, 2⅛ column references.	6 dissertations, 1 column references.
Bile ducts, cancer of.	1 dissertation, ⅛ column references.	7 dissertations, 1¼ column references.

In a case which I saw some sixteen years ago, a man aged seventy-six, of simple habits but (supposed) gouty diathesis, had jaundice for forty-five days, with very dark urine and clay-colored stools. The liver and gall bladder were felt below the ribs. My diagnosis was, "probably cancer of the liver with a possibility of simple jaundice (that is catarrhal)."

At the autopsy the bile ducts were all enlarged down to a point about ¾ inch from the opening into the duodenum, where there was a sudden narrowing, and the duct was very small for the remainder of its course. In the neighborhood of the stricture the tissues, adipose and fatty, were somewhat consolidated and nodulated. There was no distinct new growth, either here or in the liver. There is no record of a microscopical examination, but it is quite as likely that this was an unrecognized cancer as that it was a piece of cicatricial tissue, for the existence of which no cause could be found. Cicatricial stenoses have been found in other cases, but usually with them an indication of the causative lesion in the form of an old ulcer.

There are three points at which the bile ducts are especially liable to be affected by cancer, although it may occur in the intervals between them. These are the union of the ducts from the two lobes of the liver, the union of the cystic and hepatic ducts, and the entrance of the hepatic duct into the duodenum. Of cases in which the lesion has been found in the last-named region, that is, at the papilla or a very short distance above it, I have looked up 22, including a number also given in Musser's table.

As to the frequency of cancer in the ducts and of the papilla in particular, the following figures may be of interest. Musser gives 18 cases, of which 9 were in or near the papilla, as against 100 of the gall bladder. In Villard's monograph (1871) are collected 24 cases of cancer of the ducts, of which 1 may have been in this position. Dieckmann[1] says that in the reports of the Munich Pathological Institute, from 1854 to 1884, he finds only 1 case of gall bladder cancer recognized as primary, but 71 of cancer of the liver. Howald[2] says that in the last fifteen years, at the Pathological Institute at Bern, there were 10 cases of primary gall bladder cancer. As both of these last theses were upon "cancer of the common duct," it is fair to suppose that if the authors had found accounts of any cases beside those upon which they based their theses they would have been reported. Kelynack (1897), after the remark that primary malignant disease of the bile passages "although far from common, can hardly be considered rare," states that, "in an extensive search through our pathological records (Manchester Royal Infirmary) of 4,578 cases, I can only find details of 8 clear cases of primary cancer of the gall bladder and 2 undoubted cases of primary cancer of the common bile duct."

The presence of gall stones in connection with primary cancer of the bile ducts and gall bladder is very interesting, in connection both with diagnosis and etiology, and as having a bearing on the origin of cancer in general. Considering the great frequency of gall stones, it is certainly fair to assume that in a certain number of cases their occurrence with cancer is a coincidence. In others, of which the one just reported is one, the deposition of the concretion is much more probably the result of the retention in the gall bladder of what is at first bile, but afterwards becomes considerably altered by a partial absorption and the secretion of mucus.

In this case the stones were small and angular,

[1] Inaug., Thesis, Munich, 1889.
[2] Inaug., Diss., Bern, 1890.

without being facetted, as if they had never been disturbed or subjected to friction. Their color in the interior was dark brown, with thin successive layers of lighter yellow, and externally a pearly white, as if they had been deposited from a menstruum, at first dark, becoming lighter, and at last white, like the fluid in which they were found. This undoubtedly took place after the duct was occluded, the bile originally contained therein having undergone the usual changes. Had they been the cause of the cancer and the stoppage, there was no reason why they should not have been throughout of the usual dark color. There was no stone in the common duct nor in the immediate neighborhood of the new growth.

The theory of the origin of cancer in a local irritation certainly receives support from many cases where gall stones are found in the midst of malignant growths, where they may have been the source of that long-continued but not very intense mechanical irritation, which seems, if any, to be the kind necessary to the formation of a neoplasm. This, however, is far more common in the gall bladder than in the bile ducts. Thus Musser, in 100 cases of cancer of the gall bladder, found stone mentioned 69 times and supposes that it may have been overlooked in many more. On the contrary, in 22 cases mentioned above of cancer of the papilla, or a very little above it, including some of those already tabulated by Musser, gall stones are mentioned 4 times, 3 at least of these being in the gall bladder. The possibility has been suggested that a stone may find a lodgment long enough to set up the necessary irritation, and then escape, without leaving behind definite traces. One case of Leith[8] lends some support to this view. A patient had had definite symptoms of gall stones. None were found at the autopsy, but there was a malignant adenoma, and the walls of the duct were roughened and thickened as if from catarrhal inflammation resulting therefrom. Quinlan (quoted by Kelynack) mentions a case of cancerous disease of the liver where the duct was imbedded in a mass of malignant growth, but its opening into the duodenum was four times the normal size, and suggested the likelihood of passing of gall stones.

To suppose, however, that this is an adequate explanation of the origin of cancer in the papilla or higher up, in any considerable number of cases, is working a mere hypothesis very hard in the face of a large number of cases, in fact in nearly all, where there have been no symptoms whatever of the presence or the passage of gall stone.

The further assumption of a painless passage to cover this gap involves the contradiction of an almost universal rule that the movement of a gall stone through a previously undilated duct is one of the most painful processes which ever takes place in the body. The records of the Dorchester Medical Club mention 2 cases where, death having apparently taken place from the pain and shock, a gall stone was found protruding from the papilla into the duodenum, that is, at the very point where this theory demands that they should escape without pain, but leaving behind them a neoplasm. The observation of Musser that, unlike cancer of the gall bladder which, as well as gall stones, is more frequent in the female, that of the bile ducts occurs with equal frequency in both sexes, also points to the conclusion that while it is very probable that gall stones play an important part in the etiology of cancer of the gall bladder we must look elsewhere for the local irritation necessary to set up a similar growth in the ducts.

The diagnosis of these small neoplasms, lying as they do in a region where they are inaccessible to palpation, is stated by some authors to be almost impossible. This is undoubtedly true as regards their exact size and location, but an approximate diagnosis, such as can in many cases be made with some accuracy, is not without its practical value. I think that every one of the several physicians who saw this case, even in the early stage, formed at least a mental diagnosis not far from the truth as regards the nature of the disease, but I think also that all of them, including myself, would have expected a more extensive lesion to be found at the autopsy after more than a year's growth.

A rapid, complete, non-febrile jaundice in a person over forty or forty-five, preceded and accompanied by no severe and painful paroxysms, and succeeded, if by any, only by a moderate amount of diffuse pain and tenderness, especially after it has lasted long enough to exclude catarrhal jaundice, is an adequate basis for a highly probable diagnosis of cancer of the ducts; and if later the smooth non-nodular edge of the liver, with the gall bladder tense but not tender, presents below the ribs, it is also highly probable that the lesion of the ducts was the primary.

Unfortunately the presence of painful paroxysms is not so decisive in one direction as their complete absence is in the other, for even if significant of gall stones this does not exclude carcinoma.

The distinction between a growth originating in the walls of the duct itself and a small malignant or other tumor in the head of the pancreas pressing upon it, and producing total occlusion there before giving rise to symptoms elsewhere, would certainly be very difficult to make. When the pancreatic disease is more advanced, many of the symptoms are likely to resemble those arising from the bile ducts. The presence of such a tumor must be an extremely rare condition, much more so even than any we have been considering, and when the disease is more advanced the deep seated pain and tenderness, the gradual onset of the jaundice, a hard immovable tumor in the median line, would be likely in most cases to decide the matter. The presence of fatty stools would of course have great diagnostic value, but as this is usually insisted on rather from physiological theory than from clinical observation, its absence throws no light upon a doubtful case, and the same may be said of sugar in the urine.

Of course the important point is to determine as early as possible the exact location of the growth, and this certainly cannot be done without an operation. This has, of course, often been done and

[8] Transactions Medical Chirurgical Society, Edinburg, 1895-96.

successfully for the diagnosis and relief of gall stone.

Musser in his last case[4] had in contemplation an operation for cancer which was for special reasons postponed a few days, during which the patient was suddenly attacked by a fatal hemorrhage. Had this operation been performed it would have been the first to be based upon a distinct diagnosis of cancer of the biliary ducts. It can hardly be doubted that in the future exploratory operations will be undertaken with the object distinctly in view of dealing with a cancer, if such shall be found, either by removal or by circumventing the obstruction in such a way as to give a more or less extended relief.

So far as I am aware the only operation as yet done for the removal of a cancer of a bile duct was that reported by Dr. Halsted,[5] and doubtless familiar to readers. Although not successful as to its ultimate result, it shows the feasibility of such an operation, and the return of the disease after the very careful removal only emphasises the fact, already only too well known, that it is almost impossible to cut wide enough of any focus of cancer to be sure of having included the utmost limits of the infected region.

At the time when the question of operation was formally considered in the present case, it certainly could not have been successful, but had it been possible a year before to have known exactly the condition, it might perhaps have been feasible as in Dr. Halsted's case, and either relief or permanent cure obtained according to the presence or absence of cells of carcinoma beyond the limits of the operation. Considering, however, what must have been the very slow growth, when even after sixteen months the primary and secondary growths together were so small, and yet, as it seems, so far beyond the bounds of a possible thorough removal, it is by no means improbable that even when the first symptoms appeared there must have been a wider diffusion of the new growth than would have been apparent or accessible to the knife.

This case exhibits without any complication the effects of suppression of the bile flow, and does not show the effects usually attributed to its reabsorption, which so far as coloring matter is concerned evidently took place freely. It is to be regretted that no examination of the urine for bile acids was made. I have not found any statement of such an examination having been made in any of the cases closely resembling this. There was not the slow pulse supposed to follow the ingestion of cholic acid, it having been usually not far from 100. There was no delirium until the last few days, no disturbance of the intellect nor excessive depression. It would appear from this and similar cases that the evil effects of long-continued obstruction to the flow of bile are due not so much to its presence in the circulation, as to its absence from the intestine and a consequent steady and fatal impairment of nutrition. Hence the inutility, so far as promoting recovery, of tapping the gall bladder and establishing a fistula, although such a procedure would in cases where the cystic duct remains permeable, remove the effects of reabsorption such as the liability to hemorrhage and to sepsis, which is likely to take place if any ulceration occurs.

In case the only obstruction should be situated near the mouth of the duct, the cholecystenterostomy suggested by Mr. Robson would relieve both sets of symptoms until the growth of the neoplasm made another invasion higher up, and in the case of a very slow growth, such as there may be, such a temporary relief might add a considerable time to life.

An operation for establishing an anastomosis between the common bile duct and the duodenum is reported by Dr. J. E. Summers, Jr., of Omaha,[6] but without details as to the anatomical condition before operating, especially the nature of the stricture. He speaks as if the getting rid of the bile were the chief object in making the communication, and as if it were to be undertaken only when the discharge cannot be secured through the gall bladder. The supply of this digestive fluid in the intestines, which cannot be supplemented by any other, is of equal importance, and more details as to this case would certainly be very interesting.

The bibliography of the subject may be found largely in the "Index Catalogue" of the Surgeon-General's library, but it is useful to call attention to four important articles not to be found there. The elaborate study by Dr. Musser in the *Transactions of the Association of American Physicians* for 1894 is not there, probably for the reason that it is to be indexed under the title "Gall Bladder," although it is equally complete on the subject now under consideration. There is a subsequent paper of his in the *Philadelphia Medical Journal* for October 6th of last year. The largely statistical article by Kelynack is to be found in the *Medical Chronicle* (Manchester), and is a very important one. Fourthly, come the article[7] and book (1897) of Mr. Robson on the "Surgery of the Biliary Passages."

[4] University Medical Magazine, September, 1899.
[5] Boston Medical and Surgical Journal, vol. cxli, No. 26, vol. 2, 1899, p. 645.
[6] *Journal American Medical Association*, December 1, 1900, p. 1403.
[7] *British Medical Journal*, April 28, 1894. *Lancet*, May 27, 1897.

THE INTERPRETATION OF BACTERIOLOGICAL FINDINGS IN DIPHTHERIA DIAGNOSIS.

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IN May, 1898, the examination of diphtheria cultures for the city of Boston was transferred from the Harvard Medical School to the laboratory then just established by the Board of Health in the Sudbury Building. For about three years prior to that date this work had been under the direction of Prof. H. C. Ernst. On him fell the trials and difficulties always inseparable from the introduction of new methods and procedures. Having successfully met and conquered these, he

handed the work over at a time when its value was established, and it had become a recognized factor in the always difficult subject of the management of diphtheria cases.

Only two changes of any moment were made in the diphtheria diagnostic service; one technical (the substitution of the now almost universal "swab" for the platinum wire), the other executive (the requiring of two consecutive negative cultures for release instead of one). In May, 1900, a further executive change was made in requiring that each of the two consecutive negative cultures for release should be taken from both the nose and throat of the convalescent patient.

SUMMARY OF EXAMINATIONS.

The official year ends January 31; therefore, the diphtheria work of this laboratory since May, 1898, may be conveniently divided into three periods: the first representing nine months of 1898-1899, the second and third periods corresponding with the two following years to January 31, 1901. The following table shows the main features of the work:

	Cultures Examined.				Persons Examined.				Diph. cases in city*
Year	Month av.	For D.	For R.	Total	Month av.	Pos. D.	Neg. D.	Total rel'd	
	1	2	3	4	5	6	7	8	9
1898 9 mos. actual	440	1,544	2,404	3,948	190	321	1,148	415	
est. 1898	440	2,000	3,200	5,300	190	400	1,500	550	1,661
actual 1899	660	4,408	3,522	7,930	380	1,019	2,920	1,002	2,836
approx. 1900	1,560	8,000	10,800	18,800	700	2,100	5,600	2,000	5,020

* Cases reported.

It will be seen (column 9) that the number of diphtheria cases reported in the city increased about 75% each year over that of the year before during this time. The monthly average of persons examined (column 5), naturally increased also. Some of these examinations were compulsory, that is, due to the regulation of the Board requiring cultures *for release* from persons convalescent from diphtheria. The examinations made *for diagnosis* are wholly voluntary however, and it is satisfactory to see that the number of persons thus examined (columns 6 and 7) have increased at the rate of about 90% to 100% each year.

The most satisfactory increase is that shown by comparison of the total diphtheria cases reported (column 9) with the total positive cases examined for diagnosis at the laboratory (column 6). It will be seen that in 1898, the positive laboratory diagnoses were but 25% of the total cases reported; in 1899, they were about 35% of the total cases reported, and in 1900 about 42%, holding out the hope that the majority of the cases reported in the future as diphtheria will pass through the laboratory for examination.

Comparison of column 8 with column 9 shows that from 33% to 40% only of the total cases reported are released by this laboratory. The remaining cases are accounted for by the large number of "removals to hospital" (50 to 60% of the total cases) and by deaths.

INTERPRETATION OF RESULTS.

The meaning of a positive report.— When a physician receives a positive report on a culture sent in from a doubtful case he is sometimes puzzled to know exactly what diagnosis to base upon it, and is sometimes not clear as to the status of such a patient in the eyes of the Board of Health. If the positive report coincides with such a clinical condition that the physician is satisfied of the presence of the *disease of* diphtheria, no trouble arises. If, however, the positive report is made on a patient whose clinical condition is not that which the physician is accustomed to regard as the disease of diphtheria, the physician may either yield but doubtfully to the laboratory report or may dispute its correctness.

At the bottom of much of the trouble found in adjusting laboratory reports to clinical diagnoses of disease lies the fact that the definitions and nomenclature of bacterial diseases are yet in a state of flux. Agreement in diagnosis can never be reached by two men whose definitions of the disease in question differ essentially.

That form of definition and nomenclature based on cause, as distinct from anatomical or physiological character, is every day becoming more and more used in all forms of bacterial disease.

Tubercular meningitis and chronic consumption are totally different diseases clinically. But no one hesitates now to class them together on the basis of cause — the tubercle bacillus. Such a basis of classification is more useful and rational than a merely clinical basis, since it allocates more correctly the ultimate processes of disease as well as important relationships of these to complications, sequelæ and infectiveness.

It must be remembered of course that bacteria as such are not themselves the immediate cause of disease. A pathogenic bacterium is pathogenic only through the poisons it may but does not always produce; moreover the body forces tend to neutralize these poisons when they are produced.

The definition of any specific bacterial disease may be stated therefore very broadly, as *the reaction of the body to that portion of the specific bacterial toxins which the body fails to neutralize or eliminate.* Under this definition the disease of diphtheria exists always, and exists only, when the body shows a reaction to toxins formed by the diphtheria bacillus. This definition does not require that the reaction of the body to the toxins shall be along fixed clinical lines. Indeed, poisoning by diphtheria toxins does not invariably result in such fixed conditions. All gradations of the systemic poisoning may be recognized and a variety of anatomical conditions may accompany these. The relation of the various common types

of "sore throat" to each other under the older and the newer conceptions of the disease may be roughly shown thus:

OLDER ANATOMICAL CLASSIFICATION.	CLASSIFICATION ON BASIS OF CAUSE.
Membrane = diphtheria	Membrane due to diphtheria bacillus toxins = diphtheria.
	Membrane not due to diphtheria bacillus toxins = not diphtheria.
Exudate = follicular tonsilitis	Exudate due to diphtheria bacillus toxins = diphtheria.
	Exudate not due to diphtheria bacillus toxins = not diphtheria.
No membrane or exudate = simple sore throat	Simple sore throat due to diphtheria bacillus toxins = diphtheria.
	Simple sore throat not due to diphtheria bacillus toxins = not diphtheria.

The difficulty of working under this definition and classification of diphtheria is that it makes the presence of the disease depend on the presence and activity of diphtheria toxins, while no absolutely decisive method for determining the presence and activity of the toxins is at hand. It is true that, if marked symptoms of diphtheria poisoning develop the physician may accept as demonstrated both the presence of the toxin and its activity, that is, the absence of its neutralization; if no symptoms at all develop he is sure that the toxins were not formed, or if formed were neutralized — it does not matter which so far as the patient is concerned. This clinical test is, however, likely to be spoilt, or at least seriously interfered with, by treatment, especially if diphtheria antitoxin be employed — the very symptoms to which the physician might look forward for confirmation of his earlier tentative diagnosis being often thus made of no avail from the diagnostic standpoint. Finally even the developed symptoms may be of an indecisive character.

The determination of the presence of the diphtheria bacillus is therefore used as a sort of "toxin-indicator." It is true that the diphtheria bacillus may be present and yet no toxin be formed, for the diphtheria bacillus does not always produce its poisons. It is true that the diphtheria bacillus may be present and may be producing its poisons, and yet that the body forces may neutralize them as fast as they are made. In both these cases a diagnosis of diphtheria based on the presence of the diphtheria bacillus alone must fall to the ground, since in neither case will the body show a "reaction to diphtheria toxins" as required by the definition given.

Animal experiments may demonstrate the presence or absence of toxin-making power in the particular diphtheria bacilli isolated, but such a laboratory test is too slow for use in diagnosis, besides leaving undetermined the equally vital question of whether or not the diphtheria toxins are being neutralized by the patient. This latter point can indeed be decided only if at all by the condition of the patient, who is himself at once a combined "test for virulence" and for "neutralization of toxins."

Diphtheria diagnosis by culture, therefore, is based on a definition and some assumptions. We must admit that diphtheria is that disease, whatever its precise form, which is caused by diphtheria toxins. We must assume that if diphtheria bacilli are present, the diphtheria toxins are present also. We must assume that if diphtheria toxins are present, any symptoms presented by the patient are due to those toxins.

In the great majority of cases, these assumptions, always legitimate in the absence of evidence to the contrary, prove correct. Being based on generalizations, however, they will sometimes fail in particular cases, but the percentage of failure is much less than that of unaided clinical observation.

The relation of the Board of Health to the patient showing a positive culture is comparatively simple. The Board of Health does not take the position, as may be gathered from the foregoing discussion, that a sick person is *necessarily* suffering from the *disease* of diphtheria simply because a positive culture has been obtained, although this is usually true. The board does insist, however, that such a person is a nucleus from which the bacilli may be spread, and remains such until the bacilli disappear. The board recognizes that the patient may be harmless, despite the positive culture, if the bacilli in his nose or throat are not actively producing toxins. But since the methods for determining that the bacilli fail to produce toxins are impossible of application in practice to large numbers of cases, the board feels justified in assuming that they are virulent on the strength of very much evidence which shows that the error involved in this assumption is small. Hence it is that a positive report on a case for diagnosis is considered sufficient evidence for the isolation of the sick person as infective.

The questions relating to virulent diphtheria bacilli in well persons are now under consideration in many quarters. An extensive investigation under the auspices of the Massachusetts Association of Boards of Health has been organized, and the results are expected to be of much interest.

None of these methods are perfect. Perfection is beyond humanity as yet. They are, however, the best at hand. Their imperfections result perhaps in occasional injustice to the individual, but on the whole the community is better protected, with less injustice to the individual, than under other circumstances. The greatest good to the greatest number must be the rule.

The meaning of a negative report. — If the bacilli are absent from a given throat or nose it is of course impossible to find them in cultures taken therefrom, but unfortunately they may be present in the throat or nose and still fail to be found in the cultures; hence, while a positive report indicates clearly the presence of diphtheria bacilli, a negative report is by no means such good evidence of their absence, particularly in laryngeal cases. This is especially true of a single negative culture but also, although to a less degree, of two or even three; thus, very occasionally, a positive result may be obtained on the fourth or fifth culture, the earlier cultures being negative.

From 5% to 10% of the cases finally proving positive fail to yield a positive result on the first examination.

The absence of the bacilli once established is complete proof of the absence of the disease of diphtheria; the difficulty is to establish their absence. Four or five negatives at least should be obtained (the more, the better) before a diagnosis of diphtheria is surrendered on bacteriological evidence alone.

The clinical diagnoses made by the physician compared with the bacteriological results of the cultures show that diphtheria bacilli are found in about 60% to 70% of the cases which the physician designates as diphtheria, and in about 10% to 11% of the cases which the physician designates as "not diphtheria." The clinical diagnoses mentioned are those appended to the card by the physician at the time of taking the culture, and of course in many cases do not represent the final clinical diagnosis which he arrives at later on, but only the tentative diagnosis at an early stage of the disease.

The meaning of a "no growth" report.— This form of report is used when for any technical reason the examination of the culture is a failure. Most of the "no growths" result from the use of dry tubes or from the growth in the serum tube of a certain bacterium or group of bacteria which liquefies the serum. The number of "no growths" has been very much reduced of late. In 1898 they formed over 2% of the total cultures; in 1899 a little less than 2%, in 1900 under 1%. In December, 1900, 3,900 cultures were examined with only 11 "no growths" — less than .3 of 1%. This decrease has been due largely to the greater care exercised by physicians in rejecting obviously dry or bad tubes, and to the increased use of the cultural test which keeps the serum tubes in circulation, affording no time for drying out. With every precaution and care, however, some cultures will be failures for the reason that the liquefying bacteria are wide spread, and occur sometimes in the throat or nose of the patient himself. In such a case the more perfect the technique of inoculation the more certain is the liquefaction of serum. In one instance, four consecutive cultures from the same patient taken on four consecutive days were all liquefied.

The meaning of a request for another culture.— If the physician states that membrane is present on pharynx and tonsils, or if the physician makes a clinical diagnosis of diphtheria, it is our custom to request another culture, should the first be negative. If what used to be called the "nose bacillus" is found in a culture for diagnosis, a request for another culture is also made, because at the present time there is considerable evidence to show that this nose bacillus may be a member of the diphtheria group and may often be virulent.

The meaning of the rapid or swab examination. — Briefly, a positive report from a swab examination has the same significance as a positive report from a culture. A negative report from a swab is absolutely meaningless. In such cases the cultural report must be waited for. In about 50% of the finally positive cases only can a positive result be obtained from the swab itself. However, since a positive swab result saves fifteen to twenty-four hours of waiting for the result of the culture, it is in this 50% of cases well worth obtaining.

Release from isolation. — The principle of release by culture in diphtheria is analogous to that of waiting for the desquamation to cease before release in scarlet fever. In scarlet fever the infective agent is supposed to be in or on the scales. These are evident to the eye, and the friends and relatives of the convalescent comparatively seldom object to the continuance of isolation until they have disappeared. The infective agent in diphtheria, however, is unfortunately only perceptible by cultural tests, and much difficulty is found at times in making clear the necessity for their disappearance before release is granted.

A scarlet fever patient grows quantitatively, though perhaps not qualitatively, less infective as the desquamation decreases. So, also, the diphtheria patient grows quantitatively, perhaps sometimes also qualitatively less infective, as the diphtheria bacilli become fewer. It is true that diphtheria is somewhat less infective than scarlet fever in the proportion of nearly 3 to 4; that is, of 100 persons exposed to scarlet fever 38 may be expected to contract the disease (Chapin),[1] while of 100 persons exposed to diphtheria only 30 will take it. On the other hand, this smaller infectiveness of diphtheria is more than counterbalanced by its greater fatality, which is, at least, double that of scarlet fever. There can be no question, then, of the expediency of isolating diphtheria patients until they become non-infective. The character of the bacteriological proof required to show that this has occurred is a different matter.

Release on one negative culture allows 30% of the total positive persons released to go out of isolation while the bacilli are still present. This is because negative cultures for release partake of the weakness of all negative cultures, in that they do not necessarily prove the absence of the diphtheria bacillus. Indeed, a negative culture for release is less reliable than a negative culture for diagnosis, because the bacilli are then fewer in number, have become scattered and, moreover, lie in the folds and follicles of the mucous membranes from which they are extruded only at intervals with the secretions. Hence, a culture may one day be negative, the next positive. Indeed, this is true sometimes of cultures taken only an hour apart.

Extensive investigation has shown that if two consecutive negative cultures for release be demanded, only 1% to 3% of those released will be still infective (McCollom). To make sure of this 1% to 3% by requiring three consecutive cultures for release would involve so much additional trouble for the physician and the patient that hitherto it has proved impracticable outside of hospitals.

[1] Annual Reports, Providence, R. I., Board of Health.

NOTE. — The term "toxin" has been used in this article as an equivalent for poisons derived from a bacterial source, not in its technical sense as a particular chemical form of bacterial poison.

DESTRUCTION OF LEFT EYE AND FRONTAL LOBE OF BRAIN FROM A SHOTGUN EXPLOSION.[1]

BY EDWARD SWASEY, M.D., WORCESTER, MASS.
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THE severe and destructive injuries of the frontal lobes of the brain form an interesting and instructive basis for physiological and psychological study. Just what functions these lobes perform in the human economy, I believe have not been fully determined. That these functions are more of the psychological than the physiological nature, I believe has been pretty well determined. We know that in man they are more developed in proportion to the remaining portions of the brain than in any other species of animals. And in different types and races of men the development of the forward part of the brain is indicative of their mental calibre and equipoise. The massive forehead we are wont to associate with the mental power of a Webster, Scott, Everett and many others, while the low, retreating forehead, the "beetle brow," we as instinctively associate with low mental power, and in extreme cases with low brutality and viciousness. But these are only broad and general conclusions, and do not tell us what the specific purpose of the so-called frontal portion of the brain is.

That the frontal lobes are of little importance in sustaining the vital functions in man has been well known for a long time. And yet I find but little explicit information regarding them in various authorities consulted. The following quotations bear on the subject as directly as any I have seen. One authority says: "Modern physiologists regard the prefrontal part of the brain as the seat of character and intellect. After removal of this part in dogs and monkeys, no paralysis of any muscles or loss of sensibility occurs, but singular changes in the behavior, emotions and character of the animals have been observed. They become livelier, restless, impatient, irritable, quarrelsome and violent. Their movements seem purposeless, and their attention to what is going on around them, and their intelligence, are diminished." "These observations," says the same authority, "have been confirmed by similar phenomena in cases of human beings." Another authority says: "Removal of one frontal lobe is comparatively insignificant in its effects, while when both are removed the change is profound. On removal of the frontal lobe in one side only, there is disturbance of vision, intelligence and character. There do occur both sensory and motor disturbances; but these, for the most part, are transient. On the side opposite to the lesion there is in the limbs a blunting of all sensation and some paresis. Moreover, there is a hyperesthesia combined with a paresis of the muscles of the neck and trunk, which move these parts away from the side of the lesion. These effects of the operation tend to pass off. If the remaining lobe be removed from a dog or monkey, not only do the symptoms first described appear on the other side of the body, but still more fundamental changes occur. A ceaseless wandering to and fro, curiosity, affections, sexual feelings, pleasures, memory and the capacity to learn are at the same time abolished; and the expressions of the animal are those of fear and excessive irritation. But that the frontal lobes are the seat of the intelligence is by no means established."

Following this brief introduction, I wish to relate the history of a case of injury to one frontal lobe which came under my observation in the City Hospital, in November, 1898. It is chiefly interesting in showing how little disturbance and reaction may follow these severe lacerations of the brain. To supplement this history by briefly reviewing some similar cases shall constitute this paper.

A boy of sixteen years of age was out gunning on a Sunday afternoon. He had an old shotgun that had contained a charge of powder for a long time. Not seeing any game, for even the birds and squirrels of quiet West Boyleston are disposed to observe Sunday, the boy's desire to make a big noise could not be resisted, and he discharged the gun, resting his face on the stock, and sighting along the barrel. There was an explosion, the boy was knocked senseless, and when picked up there was a large, ragged wound, involving the left eye, eyebrow and part of the frontal bone. He soon recovered partial consciousness, and Doctor Warren, of West Boyleston, seeing the seriousness of the injury, decided he should be sent to the Worcester City Hospital. He came in that evening, was examined by a member of the house staff, and as the boy was not suffering, having a pulse of 70 and respirations normal, he decided to let the case rest till morning.

The case was to all appearances so decidedly an eye case that I was asked to see him the next morning to do an enucleation. A large, ragged wound, involving all the supra-orbital ridge on left side, was presented. The eye was pushed downwards and outwards and nearly out of the orbit. Enucleation was done, and there it was seen why the eye was so displaced and ruptured. The superior orbital plate was pushed down, and so filled the orbit that only the tip of my finger could enter it. Large fragments of bone were found loose in the orbit and wound; and only in search of these and examining the wound in the frontal bone more carefully was the full seriousness of the case disclosed. At the outer and upper angle of the wound, hidden under the swollen tissue, I found what I supposed at first was a small fragment of iron. But on attempting to remove it I found it firmly held and quite immovable. I made several attempts to dislodge it, and only after taking strong forceps, and racking up and down and from side to side, could I dislodge this mass, after having the forceps slip off several times. Finally this breech pin and screw (Fig. 1) were removed from the wound. It was followed by quite a good deal of soft brain matter and blood, but as no large blood vessels had been injured the hemorrhage soon

[1] Read before the Worcester District Medical Society, November 8, 1899.

subsided. After cleansing the wound as best I could in this soft brain substance, the edges were brought together in an imperfect manner, because of the loss of tissue and ragged edges, and a firm compress bandage applied.

The next day he had severe headache, but pulse was 72, and he was hyperesthetic over the whole body. He then settled down to a comparatively comfortable state, with pulse respirations and temperature nearly normal.

On December 4th (operation on November 21st), or two weeks after entering the hospital, the notes say: "He can move arms and legs equally; hyperesthesia wholly disappeared; no headache, and he is comfortable."

A few days after the operation a large pulsating tumor filled and projected from the wound in the frontal bone, but was easily held in bounds by a compression bandage. He kept his bed constantly.

December 11th. The report says: "Is slowly improving; feels very comfortable."

December 14th. "Has great headache and pain in back of neck; more restless. At 8 A. M. had a convulsion that lasted some minutes. At 2 P. M. passed into a state of stupor; respirations deep. In fifteen minutes more had a second convulsion. After this he was more restless and moving about.

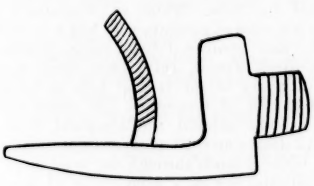

Fig. 1.

Temperature at one time was 102°, pulse from 80 to 160. Later, on same day, had a third convulsion, and more twitching of left arm and leg than of the right. Stupor continues. That evening temperature was 104°, pulse not changed."

December 15th. "No convulsions. More twitching of arm and leg; temperature and pulse unchanged."

December 16th. "All symptoms continue about the same; some movements of side of face; the left hand has a cyanotic tinge, and almost no movements in this limb. It seems paralyzed."

December 17th. "He is growing weaker; profuse perspiration on body; respirations deep and regular; temperature 104°; pulse 130."

December 18th. "Remains about the same as yesterday."

December 19th. "At 7 A. M. he died, without any material change in his symptoms."

Subsequent to the operation he was under the care of Dr. E. H. Trowbridge, for the patient entered his service on coming into the hospital.

Fortunately a post-mortem examination was secured, and was performed by Doctor Baker, pathologist to the hospital, and Dr. Adolph Meyer, neurologist to the Worcester Insane Hospital. There was found a large ragged opening, formed by the entire loss of the superior orbital plate and the supra-orbital part of the frontal bone. This opening had been filled by the pulsating brain mass. But now a large empty cavity was seen behind this opening, for the whole frontal lobe was practically destroyed by the original injury and the subsequent events. The remaining portion of the brain appeared quite healthy, except for evidences of a basilar meningitis and of the left ventricle. This lesion Doctor Meyer regarded as the sole cause of the fatal termination. The extent of the injury to the brain will be more readily understood when you see this drawing, showing the distance the breech pin entered the brain. I have taken the outline of the skull in the Medical Library, which I think corresponds closely to the size of this boy's skull. As the small end of the breech pin projected forward, the body must have taken about the position shown in the drawing. It turned through about half a circle from the gun stock to its final resting place, for the point which projects backward on the stock pointed forward in the wound. It is quite evident that part of this turning occurred after it struck the frontal bone; hence the large wound and destruction of the frontal lobe. It had entered the left ventricle, and the anterior part of the parietal lobe was wholly destroyed and disorganized. Pus was found in the left ventricle. On removing this rusty, dirty mass from the boy's brain, my first conclusion was that if he did not soon die from some meningeal hemorrhage or collapse, surely he would soon develop a severe meningitis and encephelitis that would speedily take him off. But not so, for as soon as he had recovered from shock of the operation he settled down to quite a comfortable existence for about four weeks, and then died suddenly. But why he did not develop severe meningitis rapidly, I do not yet quite understand, for I could not irrigate and cleanse the deep parts of this wound as I might almost any other tissue of the body. Possibly the soft brain substance and hemorrhage that came away removed the septic matter that was on the breech pin, for it will be remembered that this lay imbedded in the brain some eighteen hours.

The further pathological changes in this case I leave for Dr. Meyer to show and discuss. But I wish to supplement the report of this case by referring to some similar cases of severe traumatic injury to the frontal lobes, for it is only to this region of the brain that I shall refer.

The most remarkable of all these is the famous "crowbar case." In this case a bar of iron, 3½ feet long and 1¼ inches in diameter, was driven through a man's brain, entering the side of the face just in front of the angle of the jaw, and coming out at the top of the frontal bone in the median line just in front of the coronal suture. He was stunned, but after a few hours recovered himself and conversed rationally. Two days later he was delirious, and in this state, and partially comatose, he remained for three weeks, and then

began to improve. In five weeks more he could walk about. In sixteen months he was in perfect health, but the mental faculties had for a time undergone a change. He became childish, wilful, fickle and restless, and suffered loss of intellectual power. Gradually, however, these symptoms disappeared. There was permanent loss of sight on the injured side. He lived for a little more than twelve years after the injury, and for a number of years was a stage driver.

Dr. H. D. Noyes, of New York, reports a case in which the breech pin of a gun was driven deep into the right orbit and projected far up into the right frontal lobe. The mass of iron was 4½ inches long, and weighed 2½ ounces. When seen by Dr. Noyes, five months after this injury, the parts had healed over so that only by chance, in the examination of the nasal cavities, with the intention of an operation to improve the man's personal appearance, was the body found deep in the orbit and brain. The patient, a strong young farmer, had completely recovered and showed no symptoms of brain injury. Only an ugly scar and a slight discharge troubled him, and Dr. Noyes says he might have lived for many years had no attempt been made to remove this large foreign body. But it was removed, and in two weeks' time symptoms of brain abscess appeared; later,

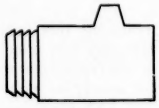

FIG. 2.

paralysis of the opposite arm and leg, and death followed, thirty-nine days after the operation.

Post mortem showed that the second and third frontal convolutions, and the orbital surface of the frontal lobe had been totally destroyed by the injury. And yet all this had given no mental sign of physical impairment in the five months this large mass of iron had remained imbedded here.

In another case a piece of iron from a shotgun was driven into a man's brain, entering the side of the face just above the centre of the zigomatic arch on the left side. The size and shape is shown in drawing (Fig. 2). In four months the man was up and about; in five months he was at work as a wood chopper in perfect health. No impairment of mental or nerve functions, only slight deafness on the same side as the injury. He then went on a spree, and while deeply intoxicated was taken over a rough road in a farm wagon for some miles. Next day he was taken with sudden and violent pain in the head and died in a few hours. The foreign body was found incysted in the anterior and inferior angle of the left middle lobe of the brain, in close proximity to the fissure of Sylvius, and the speech centre, and yet there had been no aphasia. There had been some discharge from the wound from the first. It is believed the jolting he received in this rough ride dislodged the iron from its incysted location.

In another case a rapidly revolving wheel flew into fragments, and one of these struck a young man in the left frontal bone. He was unconscious and in about ten minutes violent muscular movements began. After eight large fragments of bone had been removed he became more quiet. The longitudinal sinus and a branch of the middle meningeal artery were lacerated and the hemorrhage was quite profuse. The wound extended from the base of the nose to the top of the frontal bone, and in all nineteen fragments of bone were removed. Some hours later he became conscious, and could answer questions. He slept well that night, and the next morning the temperature was normal. On the fifth day he was sitting up in a chair. He had no pain from the first, and only for a day or two did he have a temperature of 102°. For the first three days he had diplopia, but this passed off and his sight became normal and his mind clear, so he could easily add up a column of figures correctly. Subsequently he was a bookkeeper. Gradually the space in the frontal bone was filled in by new bone, and the patient entirely recovered.

I could go on giving histories of cases on record in medical literature similar to these, but that is uncalled for here. Thus, in Wheaton's paper, giving histories of patients who had received brain injuries and recovered from same, published in the *Medical Times*, July, 1879, there were 132 cases of injury to the frontal lobe or lobes, with 58 deaths and 74 recoveries. In cases where the foreign body entered the temporal bone there were 12 deaths and 19 recoveries in a total of 31 cases, while wounds through the orbit were by far the most fatal, for in a total of 18 of these there were 17 deaths and only 1 recovery. In the parietal region there were 58 cases, 27 deaths and 31 recoveries; in the occipital region 23 cases, 16 deaths and 7 recoveries. In Erickson's "surgery" the mortality for the various regions is given thus:

The frontal region	15%
" temporal "	15%
" parietal "	13%
" occipital "	9%

This, you see, makes injuries in the frontal region quite as fatal as any, while in the occipital they are least fatal of all. Wheaton gives a total of 316 cases of foreign bodies entering the brain. Of these, 242 were musket balls or shot. In 210 cases of the total 316 cases, no attempt was made to remove the foreign body. Of these 210 cases 88 recovered and 122 died. In 106 cases of the total 316 the foreign body was removed; recovery in 72, death 34. There were twice as many recoveries as deaths when the foreign body was removed.

The reason advanced to account for the great mortality of penetrating wounds through the orbit, is that the swollen and inflamed tissues in this bony case prevent free drainage; and again gravity is against it, as the patient lies on his back. In the crow-bar case referred to the attending

physician regarded the free drainage and gravity to aid it as the chief reason for recovery. But it should be remembered that after these cases have recovered, and very likely appear to be quite themselves for a time, later on some impairment of mind or body appears — incapacity for physical exertion, vertigo, epilepsy in some of its forms, paralysis, and possibly insanity. For example, one case on record: The musket ball entered just behind the outer angle of the left orbit, destroying the sight of the eye and lodging behind it. This was an insignificant injury compared with many others in this list, but strange to say, it was followed by almost complete loss of memory, which was permanent.

I had an almost identical case in the City Hospital a few years ago, in which a small pistol ball entered just back of the outer angle of right eye. It destroyed the sight in this eye, rupturing the choroid and retina, and injuring the optic nerve. I tried to find and remove the ball by going in behind the globe, but failed to find it. It is there today perfectly quiescent, and has left no mental impairment and no deformity. It is not safe to early predict what these injuries will leave in their wake, for trifling ones may be followed by strange results, while serious ones may leave but comparatively little change, either mental or physical.

In the discussion which followed this paper, Dr. E. R. Wheeler, of Spencer, Mass., presented a patient with a history that tallies very closely with those here referred to. This was the history of the case as Dr. Wheeler has kindly given it to me:

On January 28, 1899, a man, forty-four years of age, was sawing wood with a rapidly revolving circular saw. It broke into fragments, and one of these struck him in the forehead. It cut through the visor of his cap, through the frontal bone and orbit of the right eye, near the inner angle. This fragment of bone was pushed upwards and outwards so it stood fully ¼ inch higher than the remaining part of the skull. This elevation was permanent. A finger could be introduced between the edges of the bones from the orbit to the centre of the forehead. The fracture extended on to the vertex, and from here to the top of the ear, which perhaps followed the coronal suture. A small piece of the orbit was removed, and about a teaspoonful of brain substance came away.

At the time of the injury and for a few days following there were hallucinations on some subjects, but these symptoms soon passed off. He made an uninterrupted recovery, and in about three months resumed his work, apparently as well as ever.

In August 1899, about seven months after this injury, he had an epileptic attack; and at intervals of about once or twice a month these recurred. They became more frequent, until August 16, 1900, when he was found dead in bed, having probably had an attack in the night in which he died.

CONVULSIONS IN CHILDREN.[1]

BY WILLIAM N. BULLARD, M.D., AND CHARLES W. TOWNSEND, M.D., BOSTON.

THE occurrence of a convulsion in a child is always a startling event; but it is often believed to be of little import, and due to some reflex irritation acting in the sensitive nervous organization of the child.

Of the recognized causes of convulsions in children, such as gastric irritation from improper food, the presence of worms, irritation of the ear, the onset of acute disease, all are of more or less frequent occurrence, and yet the majority of children do not respond by convulsive seizures to these irritations. It would seem, therefore, of interest to study the general condition, and after career, of those children in whom convulsions have occurred.

A certain proportion of cases of convulsions in early childhood are but the beginning of true epilepsy; and it may for a time be impossible to say in a given case whether the convulsions are reflex and temporary, or whether they will eventuate in permanent epilepsy.

We have examined all the out-patient records of the Boston Children's Hospital from the start, in 1883, to December 31, 1894, and, out of 7,180 cases in all, we have found 79 cases entered as eclampsia. Of these, 6 were manifestly cases of epilepsy with or without idiocy, leaving 73 cases of eclampsia, or 1% of the entire number of children. During these eleven years there were 51 cases recorded as epilepsy.

An examination of these records showed that 10 of these should be placed in the doubtful list, some being merely reflex and temporary, while of the 41 true epileptics 12 were also idiots. This does not include the epileptics who came to the special clinic for nervous diseases. Of these 73 cases of eclampsia, 24 have been seen or heard from lately. Six cases from private practice have been added, making 30 in all. It was thought best to investigate only those that had been seen for the first time at least five years ago. Some of them were seen as long ago as sixteen years. Of the 30 cases, 4 are dead. One of them continued to have frequent convulsions from the age of five years to his death, at ten, from pneumonia. Another continued to have convulsions from the age of two till five, when they ceased, and a year later he died of croup. A third, a child of five, who had had a few convulsions, believed to be due to worms, died six months later of tubercular meningitis. A fourth died three months after being seen at the hospital, of hemoptysis. Five more cases proved to be feeble-minded or epileptic, although the diagnosis was not made when first seen at the hospital. One of these children, seen first when seven years old, after a fit, thought to be brought on by eating sausage, continued to have fits till the age of thirteen. He is now seventeen years old, in poor general condition, and of poor mental calibre. Another patient was seen

[1] Read before the Clinical Section of the Suffolk District Medical Society, January 16, 1901.

at the hospital when ten years old, for occasional convulsions occurring without apparent cause during the preceding two months. These continued for a year, and were succeeded by slight attacks of petit mal. The boy, now fifteen years of age, appears bright and well, and is an elevator boy! The risk to himself and his passengers is evidently not understood.

Subtracting these 10 cases, we have 20 left that are living today and free from convulsive attacks; seventeen of these are bright and well, although one wets his bed, at ten years of age, every night, and another has had chorea. Three are very nervous, one being neurasthenic and despondent. All of the private cases are well and bright.

A study of the supposed reflex causes of the convulsions in these cases of temporary eclampsia may be interesting. In 6 the convulsions were traced to improper food, 5 of these at once ceasing to have convulsions when the diet was regulated. In 2 cases the exciting cause seemed to be a fright; in 1 a fall; in the other from being run over. In two, round worms were supposed to be the cause of the trouble; in one constipation. Two were cases of eclampsia occurring soon after instrumental labors. A few of these cases are worthy of special mention.

CASE I. A girl, seen at the age of four for two convulsions supposed to be due to worms. She is now twenty years of age and in excellent health, but her convulsions occurred every two or three months till she was sixteen years old, or *two years after* the *appearance* of the *catamenia*, when they ceased and have never recurred.

CASE II. A girl was brought to the hospital when two years old for convulsions, which began five weeks before. She is now thirteen years old, well and bright; the convulsions lasted for a year longer and were very numerous, sometimes as many as fifty in a day. When three years old she had measles, and has never had a convulsion since.

Of the 6 cases from private practise, 2 are cases of convulsions occurring during the first few days of life, following difficult labor in primiparæ, with forceps extraction. One of these had several convulsions during the first twenty-four hours; recovered, and is a healthy boy of ten years today, never having had any more convulsions or any nervous diseases. The second, a girl, had convulsions at intervals of every hour for three days. She is now a healthy child of eight years, free from any nervous or cerebral trouble. A third case, seen in consultation with Dr. W. E. Boardman, had convulsions after a normal labor, from the end of the first week for two succeeding weeks, so numerous that seventy were counted in one day. They ceased abruptly after purgation by calomel, and the child, now three years old, is well and strong.

The three other cases are examples of reflex convulsions appearing in apparently healthy children, and not followed by any untoward consequences.

CASE I. A boy, age fifteen months, had eaten a piece of mince pie. Four hours later the child went into a convulsion which lasted almost continuously for two hours. Two slight convulsions followed seven hours and nineteen hours later. The child, eleven years old today, has been free from convulsions since, and is well.

CASE II. A girl, three years and four months old in 1894, was discovered eating sugar out of a bowl with both hands. She vomited, was feverish, had a convulsion followed by a large, foul dejection. She has not had any convulsions since.

CASE III. A boy, twenty months old in 1895, had a convulsion lasting from one-half to three-quarters of an hour. His diet was simple, chiefly milk, oatmeal and bread, and there was very little chance of improper food having been given him. He was cutting his canines at the time. He is bright and well today and has not had any more convulsions.

To approach the subject in another way, and ascertain the relative frequency of temporary eclampsia in children, the parents of those from five to twelve years old were questioned at the Children's and Massachusetts General Hospitals as to the occurrence or non-occurrence of fits in these children, and the children were examined. Of 195 children examined in this way, 19, or 10%, had had one or more convulsions. Of these 19 children, 7 are strong and well, 9 are decidedly nervous, and 3 were considered not nervous but delicate. Three of these were troubled with eneuresis, 2 with insomnia, and 1 with night terrors; none had had chorea. The supposed causes of convulsions in these cases were as follows: Onset of acute disease 4, in 1 case scarlet fever, in another empyæma, and in 2 others measles; worms 1, teething 2, constipation 2, improper diet 3.

Our results may be summed up as follows: (1) One per cent. of the children applying for treatment at the Children's Hospital came for convulsions; (2) 10% of children between five and twelve years of age gave a history of convulsions; (3) cases that appear to be due to some manifest reflex cause may turn out to be true epilepsy; (4) other cases, where the attacks occur frequently and without apparent cause, may suddenly recover, at least, for a considerable period; (5) children who have had convulsions may be strong and free from nervous tendencies in later life, although the proportion who have nervous tendencies seems to be greater than in those who have not had convulsions.

THE SMALLPOX SITUATION IN CHICAGO. — It is reported according to the *Medical News* that only 17 new cases of smallpox have occurred during the past week. At the close of the previous week there were 44 cases in the isolation hospital; 17 were admitted during the week, and 23 discharged, with no death, 38 remaining under treatment. With one exception the cases are mild. It is announced that the stock of glycerinated vaccinelymph on hand has ripened sufficiently to make the resumption of vaccination safe.

Clinical Department.

ACUTE PANCREATITIS.[1]

BY M. H. RICHARDSON, M.D., BOSTON.

THE subject of Dr. Lund's paper is one of great interest to me, and it has been presented in a most interesting manner. One can say nothing in the way of adverse criticism. Dr. Lund has had the fortunate experience of seeing one or two of these cases of acute pancreatitis recover. In all the cases that I have seen in which this diagnosis was confirmed death has followed. It seems as if the time had come when we ought not to content ourselves with leaving these cases to themselves. The occasional occurrence of disseminated areas of cicatrization in the peritoneum — the yellowish spots referred to by Dr. Lund, and which I think every abdominal surgeon not infrequently sees — seems to show that recovery follows mild cases of fat necrosis. The severe cases are essentially fatal, and are among the most terrible of abdominal emergencies. It is to be hoped that by earlier recognition, and by earlier and more thorough methods, we may reduce the almost prohibitory mortality of operations thus far performed.

I have seen a number of cases of suppuration in the epigastrium, in the lesser cavity of the omentum. My first case was one which Dr. Elliot thought had probably started from a suppurating pancreas. There was no reason to think it was the pancreas except that the woman had a large abscess in that region. She was a "fat old woman who may have had gall stones." We simply drained the abscess, and she made a good recovery. I have drained abscesses in the epigastrium in four or more instances, but I have attributed them to other causes than pancreatitis. One occurred in a girl who had been in the habit of swallowing rubber gum. I supposed that the gum had collected in the stomach and that a perigastritis had resulted. This was indeed the fact. In another case in which I operated for Dr. Dudley, of Abington, we found extensive retroperitoneal hemorrhage. The man died, and an autopsy was not obtained. I have operated in another instance for what I supposed was suppuration of the mesenteric lymph glands situated near the pancreas. The patient, a girl, recovered, but died later of pulmonary tuberculosis. I have used this case as an illustration of possible mesenteric tuberculosis and suppuration. One case was undoubtedly an acute hemorrhagic and suppurative pancreatitis. My patient was a girl of nineteen, who was apparently moribund. I thought at first that there would be no use in operating, but finally decided to open under cocaine the epigastrium where the guiding symptoms lay. We gave her chloroform finally. The wound gave exit to enormous quantities of bloody serum, and to masses supposed to be pancreatic fat. To my surprise, the girl recovered from the operation and did well four weeks, toward the end of which time she began to cast off large masses of sloughing pancreatic tissue. She was doing fairly well, when suddenly she died. An autopsy was not obtained. On the same day a similar case was operated upon at the Massachusetts General Hospital. The patient, a man, also died at the end of about four weeks, after doing well.

I have listened to the paper with great attention and interest, and I think that the conclusions are warranted. In all obscure inflammations of the epigastrium, attended by acute sudden pain, we ought to explore. If we cannot do anything else we can at least drain. From the nature of things I do not suppose that we can save many cases. The frequency with which the diagnosis of pancreatitis has been made is suggestive. In all obscure cases of sharp pain high up in the abdomen the one who always says "acute pancreatitis" will sooner or later be right. I have said it many times, but never was right. The fact is, that the diagnosis of these obscure lesions is practically impossible unless time is taken for study, which the imperative call for operation forbids. The only case of mine in which this lesion was really found was one in which it had not been suspected. The last case in which this diagnosis was made was only two weeks ago. One of my assistants thought the lesion an acute pancreatitis; a consultant, intestinal obstruction; the rest of us made no diagnosis. Under ether it was plainly an acute appendicitis — in other words, it proved to be what almost all obscure acute inflammations in the abdomen prove to be — an acute appendicitis with general peritonitis.

[1] Contribution to the discussion of a paper on "Acute Hemorrhagic Pancreatitis," read by Dr. F. B. Lund before the Boston Society for Medical Improvement, November 26, 1900. See Journal, November 29, 1900.

CASE OF RECOVERY AFTER OPERATION FOR ACUTE PANCREATITIS.[1]

BY J. C. MUNRO, M.D., BOSTON.

The patient was under the care of Dr. Flanders, of Jamaica Plain, and was seen also by Dr. Jackson. When I saw her there was general abdominal pain, tenderness and spasm in both hypochrondria and in the epigastrium, with a tumor in the latter region, extending into the left lumbar region. The diagnosis was some retroperitoneal infection. At that time Dr. Flanders thought of pancreatitis, but personally I did not give it much credence. There was a history of recurrent attacks of gall stone, and I thought it more likely that a large gall stone had perforated the posterior peritoneum and produced a retroperitoneal lymphangitis, extending across to the kidney. On the following day, March 8th, I operated, and found the omentum full of fat necrosis, and behind that a large tumor which increased in size towards the left. I introduced the fingers into the tumor and found that there was no pus, but that it broke up rather easily. With one finger

[1] Contribution to the discussion of a paper on "Acute Hemorrhagic Pancreatitis," read by Dr. F. B. Lund before the Boston Society for Medical Improvement, Nov. 26, 1900. See Journal, November 29, 1900.

as a guide I opened on the left side and thoroughly broke up the pancreas as much as I could, and then closed the first wound and drained through the second. The operation was not well borne; in fact, I thought she would die on the table. For some days she was very ill, and then discharged an enormous quantity of material resembling pea soup, with a sweet odor. She went along well for about a month, when suddenly the temperature rose to 104° or 105° F., and she again became very ill. I explored the sinus and opened into another large cavity which contained a similar material. She recovered from that, discharging a good deal of this material, but still she had not pulled up as much as she ought, and four days later I opened through the sinus into another cavity that went up behind the lesser peritoneal cavity. At the lowermost part of all these cavities a free opening was made in the loin. She continued to discharge the greyish material, for some time, but finally the sinus closed and she has been well ever since, except for one or two slight gall stone attacks. She has gained in weight, and apparently digests everything.

She was very, very ill, but to the good nursing and to the excellent care of Dr. Flanders I think she really owes her recovery. I drained with a glass tube and iodoform wicks, removing them in forty-eight hours, when there was this gush of material resembling pea soup.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., AND JOHN W. BARTOL, M.D., BOSTON.

THE POSITION OF ACUTE PERICARDIAL EFFUSIONS.[1]

As a result of experiments on the cadaver, Aporti and Figaroli[1] reach the following conclusions:

(1) Pericardial effusions can be demonstrated by percussion only when they exceed 150 or 200 cubic centimetres.

(2) Six hundred and fifty to 700 cubic centimetres is the maximum which the pericardium can contain. (This must refer to the maximum amount which can be injected after death, since clinical experience has shown that it may contain much larger amounts.)

(3) With the patient on his back, the cardiac dullness extends in all directions proportionally to the amount of exudate, while in the vertical position the dullness is more marked in the region of the apex beat and the cardiohepatic angle. In the first instance the anterior surface of the heart is only partially, in the second it may finally become fully covered.

(4) In the horizontal posture the great vessels are surrounded by the exudate when present only in small amount, while in the erect position the base of the heart remains free even in the presence of a large quantity of fluid.

[1] Centrl. f. inn. Med., July 21, 1900.

CARDIOPTOSIS.

Ferrannini[2] speaks of displacements of the heart which are secondary to changes in other organs, and then discusses the primary essential ptosis of the heart, which was first described by Rummo.

He refers to the various theories which have been formulated to account for enteroptosis in general and cardioptosis in particular, and reports 4 new cases of primary cardiac displacement. They occurred in adults between eighteen and thirty-four years of age, 2 men and 2 women, in none of whom was there any hereditary taint. Ali showed a marked epigastric pulsation. On percussion, the lower border of the heart extended $3\frac{1}{2}$ to $4\frac{1}{2}$ centimetres below the ensiform process, while above the relative dullness began as low as the third rib, the third interspace or even the lower border of the fourth rib. There could, therefore, be no doubt that he was dealing with a displacement of the organ and not an enlargement. Auscultation showed the presence of mitral stenosis in all cases. In all four patients certain abnormalities of development were found as shown by the disproportion between the face and the rest of the skull, the slender bones, the small stature, and the deformities of the thorax and extremities. In one there were pronounced mental defects.

[2] Centrl. f. inn. Med., November 1, 1900.

"HILL HEART."

Campbell[3] describes rather picturesquely the form of heart disease which he finds especially common in hilly districts. This is a degeneration of the muscle (with preceding hypertrophy) which, although not serious enough to prevent attendance on usual pursuits or produce symptoms of back pressure, offers a constant menace to the individual, because any extra strain may result in alarming and dangerous attacks; thus may arise marked distress (anginal), dyspnea, syncope or even apoplectiform seizures, which not infrequently terminate in death. There is a report of cases which sufficiently support his description, and in closing, an explanation that the condition differs from the ordinary fatty degeneration in the existence of an antecedent hypertrophy and a consequent greater liability to the epileptiform or apoplectiform attacks, which are associated with a temporary increase in the blood pressure, a forcible action of the heart indicated by excited tumultuous movements and anginal pain, these effects being increased by the upward pressure of a dilated stomach, which is very apt to be an accompaniment of the conditions.

[3] Lancet, September 8, 1900.

DIASTOLIC EXPANSION MOVEMENT OF THE VENTRICLES A FACTOR IN COMPENSATION OF MITRAL DISEASES.

In a paper largely theoretical, and based chiefly on evidence of the cardiogram, Wilson[4] attempts

[4] British Medical Journal, September 29, 1900.

to prove that the heart has the power to enlarge its chambers by a true muscular expansion movement. The figures accompanying the paper are necessary for a clear understanding of the points in question.

ACTION OF THE HEART IN MITRAL STENOSIS.

Gibbes[5] reopens the question of the origin of the presystolic murmur. He is opposed to the Ormand-Barclay theory, that it is a regurgitant murmur; and while holding with Gairdner that it occurs before contraction of the ventricle, he considers that it is composed of three different parts. (1) Audible right ventricular muscle vibrations. In consequence of the two ventricles not acting synchronously, a portion of the right ventricular systole takes place, and its muscle vibrations are heard, while the left ventricle is in diastole; (2) a murmur caused by the flow of blood from the left auricle into the left ventricle; (3) the slapping first sound; this is part and parcel of the murmur, and ought to be so considered."

His objections to Gairdner's conclusions are based on the recognized unreliability of cardiograms, a point which seems well taken, but his own explanation is also insufficiently supported by a single clinical case and theoretical reasoning based thereon. Further discussion of the same and allied points may be found in a suggestive paper by Ewart[6] on Mechanism of the Heart and its Valves. *(To be continued.)*

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M. D., SECRETARY.

REGULAR meeting Wednesday, January 16, 1901, DR. ARTHUR K. STONE in the chair.

DR. FRANKLIN W. WHITE and DR. MAYNARD LADD read a paper on

WHEY CREAM MODIFICATIONS IN INFANT FEEDING,

of which the following are the conclusions:

(1) By the use of whey as a diluent of cream of various strengths, we are able to modify cow's milk so that its proportions of caseinogen and whey proteids will closely correspond to the proportions present in human milk. We thereby rendered it much more digestible and suitable for infant feeding.

(2) The best temperature for destroying the rennet enzyme in whey is 65.1°C. Whey or whey mixtures should not be heated above 69°C., in order to avoid the coagulation of the whey proteids. The percentage of whey proteids in the whey obtained by us was 1%; while in the analysis of the whole milk approximately three-fourths of the total proteid was caseinogen and one-fourth was whey proteids.

(3) On the basis of the analysis we were able to obtain whey cream mixtures with a maximum of .90%, and a minimum of .25% of whey proteids in combination with percentages of caseinogen, varying from .25% to 1%; of the fats, from 1% to 4%; of milk sugar from 4% to 7%.

(4) The emulsion of fat in whey, barley water, gravity cream and centrifugal cream mixtures were the same, both in their macroscopic and microscopic appearances. The combination of heat and transportation, such as sometimes occurs in hot weather, partially destroys the emulsion in all forms of modified milk, but this disturbance can be prevented by the simple precaution of keeping the milk cool during delivery.

(5) Whey cream mixtures yield a much finer, less bulky and more digestible coagulum than plain modified mixtures with the same total proteids; the coagulum is equalled in fineness only by that of barley water mixtures. The coagulum yielded by gravity cream and centrifugal cream mixtures is the same in character.

DR. T. M. ROTCH: These experiments, on which Doctors White and Ladd have spent months, are very valuable to us who are engaged in infant feeding, and a great deal of credit is due to both of them. The chief points upon which they have thrown light are: (1) In regard to the globule of fat which appears on the top of the milk in certain cases. I think they have clearly shown from what it comes and how it can be obviated. It is also very satisfactory to know that this can be obviated apparently without militating against what we are trying to accomplish in modifying the milk, whether at home or by laboratory modification. (2) The clearing up of what has been said about barley water. Some of us supposed that barley water did not break up the curd, but I think the writers prove that it does. They have gone further. They have performed a series of experiments showing us how we can accomplish what we believe to be the rational feeding of infants, namely, by a nearer approach to human milk in regard to the proteids, making the amount more closely approximate that contained in human milk.

As soon as Doctor Westcott suggested to me that the total proteids in our modifications of cow's milk was very different from that of human milk, and that the amount might be made to approximate closely by using whey albumin and the proper proportions of caseinogen, I adopted this method clinically, and began to have infants so fed to see whether we could accomplish good results. I think it is yet too soon to say whether we are to have any especially brilliant results, but it seems to me it is a step in the right direction. I suppose what we all try to accomplish, when we cannot give human milk, is to copy human milk as closely as possible, and we meet with especial difficulties when we attempt to deal with the proteids. The total proteids in cow's

[5] Edinburgh Medical Journal.
[6] British Medical Journal, October 20, 1900.

milk differ from the total proteids in human milk, and, therefore, have to be modified. It has been shown in the paper that in using whey for the purpose of modifying the proteids it is possible to get almost 2% total proteids, and yet have two-thirds of that correspond to the whey albumin and one-third to caseinogen, which is the relative proportion of these elements in human milk. This is valuable in that you can still get such a high total proteid. Two per cent. of total proteids is something which we aim at getting, perhaps at the fourth or fifth month, but in many cases not until the sixth or seventh month. My idea is that we should aim not only to copy the human proteids but also to accustom the infant to take the total proteids of cow's milk by the end of the first year. This should be done very gradually. The low proteid per cent. obtained by using whey is well adapted to the young infant, and as the infant grows older and the higher total proteid per cents are indicated and the higher relative per cents of the whey albumen cannot be obtained, the infant has arrived at an age when it will be able to take a higher relative percentage of caseinogen of the cow's proteids.

In this way, by the end of the first year it has not only been accustomed to take the total proteids of cow's milk, but also to take that proportion of caseinogen — three-fourths caseinogen to one-fourth whey albumin, which is in the cow's proteids.

In regard to the clinical results: We must have a great many more cases before we can give a definite opinion. I have been using the whey for modification in quite a number of cases, and am so far well pleased with the results. Just as it often happens, when I am using a home modification, I find that I cannot get the percentages modified exactly and minutely enough, I have to give a laboratory modification until the infant can take a home modification; so I find the total proteids of cow's milk without this further subdivision with whey give me difficulties which can be obviated by giving the proper proportions of whey albumin.

This is a great step in advance in our system of modification for infant feeding. It is working on the right basis. This paper is an exceedingly valuable one, and the best that has appeared for years on the subject of infant feeding and modification.

DR. C. W. TOWNSEND: I congratulate Drs. White and Ladd on their careful work. It is very interesting to me. Two points they brought out especially are really old points. One is the use of whey and the other the use of barley water. Both of these were very strongly recommended in the textbooks fifteen or twenty years ago. Whey I have never used myself, but I have very often used barley water and oatmeal water, and always believed that clinically it did make a difference with the digestibility of the curd, and I am very glad to have this so thoroughly confirmed by these experiments.

The use of whey, though theoretically a good thing, calls for a good deal more manipulation of the milk, and I cannot help feeling that the less manipulation we make of the constituents of milk, the better it is for the infant. Though, theoretically, it may be better to split up the albuminoids of the milk in this way and combine them again, still I believe that the less manipulation that is made the better. I have used a great deal the white of egg, which I believe corresponds very closely to lactalbumin, and which can be very easily added in home modifications. I very often use it where I have to begin with the weak albuminoids of twenty or forty or sixty hundredths of 1%, adding the white of one or two eggs to the mixture of twenty ounces, and in that way am able to increase the amount of albuminoid very much, and increase the nutritious quality of the milk without throwing too much stress on the digestive organs. Of course that is a familiar way, and it seems to me a practical way for home modifications until a simple way is found for using whey, and it seems to me it is a question then, whether it will be desirable to manipulate the milk to the extent necessary to get the whey — whey of a character we can be sure of, and which can be used in the modification of milk for infants.

DR. A. H. WENTWORTH: I wish to call attention to the fact that this method of preparing infants' food by the use of whey is not a new one. It was described by Professor Backhaus of Göttingen in 1896. The article appeared in two numbers of the *Allgemeine Med. Central Zeitung* in September, 1896. The method was found to be a practical one, and has been used in various European cities ever since. Favorable reports of results obtained by its use have been published. Biedest speaks well of it in his book published in 1897. Kolisko published an article in the *Archiv für Kinderheilkunde*, 1899, in which he gave the clinical histories of a number of infants fed in this way. The infants were much emaciated and his results were surprisingly good. It is only fair that the credit should be given to Backhaus and not to Westcott. Backhaus's work was carefully performed and controlled. Analysis of the various mixtures always gave the same results.

As to my own experience with this method of feeding, I have but little to say — I have used it in the hospital in a number of cases and once or twice in private practice.

In the hospital cases the results appeared to be about the same as when weak modifications of milk were used, so far as the dejections were concerned. It must be stated that the cases that were fed in this way had had digestive disturbances for weeks or months; they were in bad general condition and much emaciated. Such cases do not do well in hospitals after two or three weeks in any treatment. As a rule all that is accomplished in hospitals in such cases is to relieve acute symptoms and to find a food that is more suitable than the old one. Not much improvement can be expected after two or three

weeks unless they obtain fresh air. I should not draw any conclusions from my experience thus far.

The good results obtained abroad in the *same class of cases* probably depends largely on the fact that they were out patients, and were not confined in a hospital. Many of Kolisko's cases were under observation for several months.

Dr. E. M. Buckingham: I have only two things to say. One is to compliment the writers upon a valuable paper. The other is that, clinically, I have long been of the opinion that there is a tendency to reduce the albuminoids too much. Of course the reason for this is clear. Here is possibly a way in which such over-reduction may be sometimes avoided.

Dr. Maynard Ladd: There seems to be a slight misunderstanding in regard to the question of priority. We make no claims that this is a new method and take no credit upon ourselves for it. It is simply a development of the principle of using whey in order to raise the percentage of soluble proteids without increasing the caseinogen, and without altering the character of the proteids. Westcott, I think, was the first to call the attention of physicians in this country to the theoretical objections to the present method of dealing with the proteids by the simple reduction in the amount of total proteids, and he did this rather recently. I was not aware of the work done by Backhaus, but should judge from what Dr. Wentworth has said of it that it differed in many respects from our own. The chief point in our experimental work was to develop the system in order that physicians might be able to write for definite percentages of caseinogen and whey proteids, in combination with varying proportions of fats and sugars, at the milk laboratories. This has not previously been possible, and now can be done. We can write for percentages of fats, sugars, caseinogen and whey proteids in the proportions indicated on the board. This is not new, but only a development, just as the work of Backhaus was a development of the work of Monti and many others who preceded him in the use of whey. I am sure that there is no disposition to claim any priority over any one else's work, but simply to make the use of whey cream modifications practicable for use here in Boston and in other cities.

Dr. F. W. White: It is perfectly true that the method is not a new one, and that work on this subject has been done on the other side of the water. Monti has spoken many times of the value of mixtures of whey and cream in infant feeding. Our experiments were made in order to improve the method of making whey cream mixtures, and to render it more accurate if possible. We wished to apply it to American milk, and make it practicable in the milk laboratories.

Dr. Wentworth: My remarks did not refer to the work of Drs. White and Ladd: I wished to make it clear that the credit of devising the method of feeding belongs to Backhaus, and not to Westcott.

In answer to a question by Dr. Rotch, Dr. Wentworth said that Backhaus had done the same work as Westcott. Had worked it out mathematically and tested it. He did not use so many combinations, because he believed that three or four would do — a weak one; stronger one, etc. The work was performed accurately, and control analysis yielded the same results as to the percentage of whey proteid, casein, sugar of milk, fat and solids. It was not simply a "whey mixture" with milk. A high fat was obtained by centrifugalizing the milk. The whey proteids were obtained from the milk by the action of rennet in the presence of teyhsin and bicarbonate of soda. Definite quantities of cream, milk sugar, whey and water were mixed together. The following mixtures are supplied to the public by a Vienna firm, namely:

	I	II	III
Fat, per cent	3.1	3.2	3.3
Milk sugar, per cent	6.0	5.4	4.8
Casein, per cent	.6	1.8	3.0
Albumin, per cent	1.0	.3	.5
Salts	.4	.4	.7

Drs. W. N. Bullard and C. W. Townsend read a paper entitled

CONVULSIONS IN CHILDREN.[1]

Dr. Rotch: There is no question that in early life there is such a strong tendency to reflex nervous explosions that we have a very large number of these cases represented by convulsions. I have seen infants who have had forty to fifty convulsions in the twenty-four hours; proved to be dependent on an unusually high proteid in the mother's milk, the proteid per cent. running up to 3%, or even to the percentage of proteids in cow's milk. These are interesting cases, and get entirely well when the high proteid percentage is reduced, so that we should always be very guarded in making a diagnosis of epilepsy in such cases. A large number of cases diagnosticated as epilepsy are eventually proved not to be epilepsy at all.

Recent Literature.

Bruce's Principles of Treatment. The Principles of Treatment and Their Application to the Practice of Medicine. By J. Mitchell Bruce, M.D., F. R. C. P., Lecturer on the Practice of Medicine in Charing-Cross Hospital, London; Examiner in Medicine, Royal College of Physicians, London. Revised to conform with the U. S. Pharmacopeia. By E. Q. Thornton, M.D., Jefferson Medical College, Philadelphia. In one octavo volume of 625 pp. New York and Philadelphia: Lea Brothers & Co. 1900.

This book takes the place to the busy doctor of a friendly talk with an older or more experienced physician. It does not contain original ideas, nor are all its therapeutic hints up to the modern

[1] See page 233 of the Journal.

standard, but it does offer a wealth of suggestions which are conservative and practical.

The first part of the book (267 pages) deals with the Principles of Treatment, while the remaining portion is devoted to the illustration of these principles in chapters on the treatment of the more important diseases. The general plan of procedure is illustrated in the chapter on pneumonia. First comes a resumé of the disease from the therapeutic standpoint. This is followed by short sections on the Etiological Indications, Pathological Indications, Clinical Indications comprising the chief part of the chapter, and, finally, Indications from the Course. Then come two to three pages on the Outline of Practice. This portion is divided into the commencement and progress of the case, with various sub-topics, such as At First Visit, General Management and Nursing Diet, Local Measure, Medicines; At the Second Visit, At the Crisis, In the Post-critical Stage, In Convalescence.

The book is pleasantly written, but the first part is rather long drawn out.

The Treatment of Pelvic Inflammation Through the Vagina. By WILLIAM R. PRYOR, M.D., Professor of Gynecology, New York Polyclinic; Consulting Surgeon, City (Charity) Hospital; Visiting Surgeon, St. Elizabeth Hospital, New York City. With 110 illustrations. Philadelphia: W. B. Saunders. 1899.

This book is the result of the author's desire to popularize the vaginal methods of dealing with acute pelvic inflammation. He is inclined to believe that these operations are within the powers of the general practitioner, and that the attempt to refer them to specialists leads to unnecessary delay. Whether one agrees with him in this, or believes on the other hand that an inefficient performance of a specially difficult operation would be worse than the delay involved in sending for a qualified operator, one must at least grant that Dr. Pryor's book is admirably calculated to do all that any printed work can do to teach the general practitioner vaginal surgery.

The first half of the book is devoted to a lucid and thoroughly up-to-date statement of the pathology of pelvic infection, treated from the bacteriological as well as anatomical standpoint. The remainder is made up of an exposition of the methods of operating carried out in the most minute detail.

LEPROSY IN CANADA.—The extent of leprosy in Canada, as stated in the *Philadelphia Medical Journal*, is shown in the last annual report of the Minister of Agriculture. In this appears a subreport from the medical superintendent of the Lazaretto at Tracadie, N. B., Dr. A. C. Smith, for the twelve months ending the 31st of October, 1900. There are 20 inmates at the Lazaretto, 13 males and 7 females. Their ages range from nineteen to sixty-four years; and 7 of the inmates may be classified as being in the first stage, 12 in the second, and 1 in the final stage of the malady.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, MARCH 7, 1901

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A HOSPITAL FOR TUBERCULOSIS IN BOSTON.

THE urgent need of a hospital under the jurisdiction of the city, for persons suffering from tuberculosis has increased with the growth of the population and the crowding which is its inevitable result. The State has made partial provision, at least, for the consumptive poor, but the centres of population are still without proper means of caring for this increasingly large number of dependents. It is eminently natural and proper, therefore, that public spirited persons should take up the question, bring it before the appointed authorities, and inaugurate such reforms as the situation demands. The need is apparent; the best method of meeting it demands careful and far-reaching consideration.

It is no doubt generally known to our readers in this vicinity that a petition to the city government has been drawn up, and signed by a large number of prominent physicians and others, requesting that measures be taken for the establishment within the city limits of a suitable hospital for the care of persons ill with tuberculosis. The wording of the petition is as follows:

TO THE HONORABLE, THE MAYOR AND THE CITY COUNCIL OF THE CITY OF BOSTON:

The undersigned citizens and taxpayers of this city respectfully represent that the Board of Health herein established has by a regulation issued May 1, 1900, included consumption, called in said regulation pulmonary and laryngeal tuberculosis, in the list of diseases requiring compulsory notification, and after the removal or death of the patient disinfection of the premises.

That such cases of consumption constantly and frequently occur in families of the poor living within the city limits in places where the danger of contagion or infection is always great, while no means of providing for their special care and treatment here exists, although the proper protection of the public health so requires.

Wherefore your petitioners pray that by establishing a hospital and appropriating money therefor, or by

such other method as upon due consideration may seem best, the city provide for the special care and treatment of consumptive patients who, by reason of their condition in life, are unable to procure the same.

Signed: Frederick I. Knight, M. D.,
Edward O. Otis, M. D.,
B. S. Ladd,
Mary Morton Kehew,
Agnes Vietor, M. D.,
A. K. Stone, M. D.

It has furthermore been recommended, but from what source we do not know, that the Marcella Street Home, in the Roxbury District, be transferred to the Board of Health, to be used for such a hospital. This proposition has already met with a certain amount of objection from one branch of the city government, and also from the residents of the neighborhood in question. How strong these objections may prove to be, we have no present means of knowing. If sufficiently strong pressure be brought to bear they may, no doubt, be overruled; in the meantime, however, it is desirable to consider both the disadvantages and the advantages of this site for such a hospital, and also to see if there is any other feasible alternative for the care of the city's consumptive poor.

The disadvantages of the Marcella Street Home are sufficiently apparent. It is an old building; it is not provided with extensive grounds; it is situated in a considerably settled neighborhood, the population of which is likely to increase. The recognized attributes of a hospital for tuberculosis, uncontaminated air and space, are not likely to be attained by the conversion of this building into a hospital. Furthermore it must be borne in mind that the opening of such an institution immediately necessitates its proper maintenance. This means the appointment of a superintendent, resident medical officers, and a nursing staff, not to speak of the many incidentals which the conduct of an independent institution demands. All this should be considered before final steps are taken in so important a movement as this appears to be. We do not question that the signers of the petition to which we have alluded had these objections more or less in mind; their general attitude no doubt was, that it is desirable to take some decided step in the matter, even if the conditions are far removed from what they might wish. In lieu of a better building and site, it is well, for the present, to take advantage of what we have, and start the hospital for tuberculosis at the Marcella Street Home. With this line of argument we have no quarrel; it is the one which in the face of existing political conditions must be used. There is, nevertheless, one other alternative, which has apparently not received the serious consideration it deserves, and that is, the possibility of the establishment of such a hospital on Long Island in Boston Harbor. The advantages of the site in Roxbury are, that the building is already erected, that it lies within the city limits, and that with it no unpleasant associations are connected. Within the last few years a modern hospital, in the best sense of the word, for chronic disease has been in operation on Long Island; through an unfortunate terminology this has been known as the Almshouse Hospital, entrance to which requires the formal declaration of pauperism. The injustice of this is apparent, a fact which will no doubt in due time be recognized by the law as well as by individuals. In the meantime it should be understood that it is proposed to treat essentially the same class of patients at the new hospital as are now being treated in considerable numbers at Long Island. The distinction of social status is a purely artificial one, and one which should wholly lapse when illness of any sort is under consideration. Long Island has possibilities for an almost ideal hospital of the proposed sort. There is fresh air in abundance, sun the entire day, adequate space for recreation and exercise; no infringement on the rights of neighbors, with consequent diminution in the value of real estate. More than this, there is already a hospital on the island, well equipped, with competent physicians and nurses, and the accessories which hospitals are more and more requiring. A new ward, primarily for the accommodation of tuberculous patients is about to be erected, on account of the increasing number of such patients who are calling for treatment. The natural query therefore comes: why not develop what we already have, rather than unnecessarily, as it would seem, multiply charitable institutions? Especially would this appear a wise policy in view of the manifest disadvantages of the Marcella Street Home, and the equally manifest advantages of Long Island. We have no desire, at this time, to discuss details; our purpose merely is, to direct attention to an institution and to a location which must not be ignored in the final determination of so important a question as the ultimate disposition of the city's indigent consumptives.

It is perfectly clear that provision for tuberculous patients everywhere, and particularly for those in an advanced stage of the disease, must be made in the immediate future. The question is one of national as well as local interest, and in the present state of the public mind we may look for a very marked general improvement in the care of these cases during the next decade.

How this is to be brought about, and how the problem as it applies to different localities is to be solved, experience must show. There can, however, be no doubt that the ravages of tuberculosis may be very materially checked by the establishment of suitable hospitals.

REPORT OF THE NEW YORK TENEMENT HOUSE COMMISSION.

THE report of the Tenement House Commission appointed last year, which was submitted to the legislature, with a special message by the Governor, on February 25th, is, as was to be expected from the fitness of the men composing the commission, a document characterized by ability, moderation and practicality. The most serious evils met with in the investigation, the report states, were insufficiency of light and air, due to narrow courts and airshafts, to undue height of houses, and to the occupation of too great a proportion of lot area, danger from fire, lack of separate water-closet and washing facilities, overcrowding and foul cellars and courts. With all the remedial legislation and regulation since the enactment of the first tenement house law in 1867, the present type of tenement house — the six-story "double-decker" — occupying 75% of a 25 foot lot, with four families on a floor, gives to its occupants less light and less comfortable surroundings than the average tenement of fifty years ago. The commission recommends that the narrow so-called airshaft be absolutely prohibited in all future tenement houses, that proper courts, sufficiently large to secure adequate light and ventilation, be required, and that the height of non-fireproof tenements, except where the building has a width of 40 feet or more, be limited to five stories.

The present tenement house laws are very inadequately enforced, as is shown by the fact that out of 330 tenements in course of construction in the Borough of Manhattan, inspected by the commission, only 15 were found in which there were no violations of the law. In the other boroughs there was no such house found. This state of affairs is largely due to the fact that the enforcement of the different laws in relation to tenements is divided among the four departments: Health, Building, Fire and Police. The commission is, therefore, of the opinion that the best solution of the present and future tenement house problem will come through the creation of a separate department, charged with no duty except the supervision of tenements, in which there should be various bureaus with specific functions. In one of the bills accompanying the report it is provided that the proposed department shall have at its head a single commissioner, who shall have entire control of its management and be held individually responsible for any violation of the tenement house laws. The opinion is expressed, furthermore, that a requirement to the effect that no tenement house shall be occupied for living purposes until a certificate for its completion in compliance with the law be issued, will not only enforce obedience to law in the simplest manner, but will do away with the present cumbersome system of threatening prosecution and the dragging on of long legal proceedings in civil actions.

The three bureaus recommended for the new department are those of building, of sanitary inspection, and of records. The object of the last named would be to keep the records of every tenement house in such a way that the commissioner could ascertain at any time all the facts in reference to any one house. In reference to the desirability of such a bureau the report says: "The commission finds that there are a number of houses in the city which are permanently infected with tuberculosis, and that families moving into such houses without knowing these facts have become infected with the disease. Dr. Biggs, of the Department of Health, shows in a special report on this subject, which forms part of the report, that in one block in one part of the city there are at least three tenement houses in which have occurred twenty-two cases of tuberculosis in each house within five years." In regard to baths, the commission states that ordinary commercial considerations are likely to settle this question in the near future, as an inspection of new tenement houses has shown that a large percentage of them have a private bath for each apartment. The report recommends that streets in tenement districts should be paved with asphalt, on account of the facility with which they can be kept clean, and suggests that small parks in such districts could be obtained at comparatively little expense by taking only the interior of a block and permitting the erection of model tenements upon the two exterior strips abutting on the streets. By adopting this plan the city would be able to obtain needed parks and recreation grounds, and new tenements could be constructed to accommodate, at remunerative rents, quite as many persons as are now inadequately housed by old tenements on the old area.

MEDICAL NOTES

PLAGUE AT CAPE TOWN. — Plague has definitely appeared at Cape Town, and a considerable number of cases have been reported. The *Medical Press* comments on the situation, as alluded, namely, that the plague had broken out ollows: "The sinister rumor to which we have in South Africa, has proved only too well founded. Should the disease be conveyed to the front the results may be of a terrible nature. The heavy mortality from enteric fever shows that the sanitary environment of the troops must be utterly defective in the elementary points of wholesomeness. If enteric fever can play such havoc, what

may we expect from plague? Both maladies are "filth diseases," and the bad sanitation that fosters the one will extend an equal shelter to the other. The difficulties of the situation, indeed, appear to be increased a hundredfold by the invasion of the Asiatic pest. Should the plague have already broken out among the British troops it is to be hoped that the home authorities will lose no time in announcing the fact. The news that the disease had reached South Africa came to London first by way of the newspapers of Paris and Berlin. That information has now proved correct, and there is no particular reason, so far as can be seen, why the War Office should not confirm or deny the further Continental rumor that the pest has already killed a number of our soldiers. What is to be gained by silence? Has the War Office taken any steps to furnish ample supplies of plague serum in case of such an outbreak at the front?

In Union is Prosperity. — It is reported that surgeons at Vienna had made preparations to operate upon and separate Barnum's Siamese twins — thirteen-year-old boys — exhibited there, when relatives interfered. They claimed that the twins were prosperous together; apart they would be penniless.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 6, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 89, scarlatina 33, measles 50, typhoid fever 3.

Growth of the Children's Hospital, Boston. — The following statistics from the recent Children's Hospital report are of interest in showing the remarkable development of the institution: In 1890 the number of patients treated in the wards was 442, and in 1900 it was 1,394. In 1890 the new cases in the Out-Patient Department were 1,712, and in 1900 2,586. In 1890 the visits to the Out-Patient Department were 7,291 and in 1900 21,436, while of visits for out-door relief there were none in 1890, but in 1900, the value of this extension of the hospital service having been fully proved, there were 1,828 house visits made by members of the hospital staff and nurses. In 1889 the Convalescent Home, at Wellesley, cared for 104 patients, and in 1900 for 440 patients. In 1890 the number of nurses in the hospital was only 10, while in 1900 the average number has been 35.

Statistics of Butler Hospital, Providence, R. I. — According to the recently issued report of the Butler Hospital for the Insane, at Providence, R. I., on January 1, 1901, there were in the hospital 186 patients, 92 men and 94 women. There were admitted during the year 63 patients, 29 men and 34 women. The whole number of patients under treatment during the year was, therefore, 249. The daily average population was 174. There were discharged 78 patients, 40 men and 38 women. Of this number 13 had recovered, 14 had improved, 22 were unimproved, 4 were not insane, and 25 died. There remained at the close of the year 171 patients, 81 men and 90 women.

House of the Good Samaritan, Boston. — During the past year this hospital has received and cared for 241 patients, of whom 73 were children.

A Case of Smallpox in Somerville, Mass. — It is reported that a case of smallpox has been discovered in Somerville, Mass. The patient is said to have come from Cleveland, Ohio, during the active stage of the disease. The Board of Health has urged immediate general vaccination.

A Smallpox Hospital in New Hampshire. — Owing to the prevalence of smallpox in and about Concord, N. H., the State Board of Health has opened a special hospital for the care of patients suffering with the disease at Harrisville.

New Hospital for Lynn, Mass. — The Union Hospital of Lynn has bought an estate in that city consisting of a house containing twenty rooms, and a lot of land with an area of 25,000 square feet. The building is in condition for immediate occupancy, but improvements will be made before patients are received. Forty patients can be cared for in the several private rooms and the two large wards. An Out-Patient Department is part of the plan of work, which will probably be located in the centre of the city.

NEW YORK.

Hearing on the Seymour Bill favoring Osteopathy. — On February 27th there was a hearing before the Assembly Committee on Public Health on the Seymour bill conferring on osteopaths the same privileges now possessed by licensed physicians, and among those who spoke in favor of it was Mark Twain, who made a long address in behalf of what he called "personal liberty." Among those who argued against it were Dr. Didama of Syracuse and Drs. Van Fleet and Robert T. Morris of New York. Dr. Van Fleet contended that the enactment of such a measure would flood the State of New York with quacks and incompetent practitioners, and would be both a gross injustice to licensed physicians and a discrimination against the regularly incorporated medical colleges of the State. No one, he said, would care to take a four years' course at a medical college if he could go to some

Western osteopathic school, and in that way gain the right to practice medicine in New York. Dr. Morris gave the osteopaths some rather hard raps. In the course of his remarks he read from one of their authorities the treatment prescribed for felon which consisted in moving the muscles of the affected finger. "The value of that treatment will be readily appreciated," said he, "when I tell you that there are no muscles in the fingers." Later on he quoted from the osteopathic treatment of locomotor ataxia, which embraced the manipulation of bones claimed to be out of place. At this point Dr. Morris produced the spine of a child, and, taking hold of one of the vertebræ, challenged any one of the osteopaths present to move a part of the bone the fraction of an inch. "Now, there are the gloves, gentlemen," he exclaimed, "come, put them on, and give us an exhibition of your professed skill." The challenge, it is needless to say, was not taken up.

A WEDDING BY PHONOGRAPH. — A novel wedding recently took place in the town of Union, near Binghamton, N. Y., where the difficulties of a strict quarantine were ingeniously overcome, and, notwithstanding the illness of the bride, the ceremony was performed on the day originally set for it. Miss Rockfellow of Chicago, and H. A. Bush of West Point, Ky., had planned to be married at the home of the former's sister in New York, but while on her way East the bride was attacked with diphtheria at Union, where she had stopped for a brief visit with friends. The bridegroom was summoned, and he conceived the idea of a phonographic wedding. Two phonographs were procured, and in one of these the clergyman's questions and Mr. Bush's answers were recorded. The cylinders were then transferred and the machines sent to the bride in her sick chamber. When they were set in motion she answered the questions asked through one machine into the mouthpiece of the other.

THE ANOMALIES OF CHRISTIAN SCIENCE. — The *New York Herald* is authority for the statement that the husband of Mrs. Augusta Stetson, the leader of the Christian Scientists in New York (who is second in authority and influence in the sect only to Mrs. Eddy, and who derives an income from "healing" and instructing others variously estimated at from $10,000 to $100,000 a year), draws from the government, as a Civil War pensioner, a monthly stipend of $72 "for rheumatism and paralysis." According to the newspaper account, the husband is a helpless invalid, confined to the house, and in the same residence is Mrs. Stetson's mother, who is also a sufferer from rheumatism and attended by a trained nurse.

ACQUITTAL OF BELLEVUE HOSPITAL NURSE. — Jesse Davis, the pupil nurse charged with causing the death of Louis Hilliard in the insane wards of Bellevue Hospital, was acquitted on February 28th, after a trial lasting three weeks. The principal witness for the prosecution, Minnock, a reporter who feigned insanity in order to gain admission to the wards, gave his evidence in such a way that even the prosecuting attorney discredited it, and two other witnesses were insane patients, whose testimony was necessarily open to doubt. It is said that the indictments against the other two nurses charged with the same offense will now be dismissed.

POLLUTION OF BROOKLYN WATER SUPPLY. — At the annual meeting of the Medical Society of the County of Kings, held February 25th, the Committee on Public Health, of which Dr. E. H. Bartley is chairman, reported that a portion of the water supply system of Brooklyn is polluted, and resolutions offered by the committee were adopted, urging upon the Health and Water Departments the necessity of the sanitary patrol of the entire water-shed, as provided for by the city charter, and of the early construction of a grand filtration plant for filtering the whole supply.

SMALLPOX. — During the month of February there were reported in the boroughs of Manhattan and the Bronx 97 cases of smallpox, against 59 in January. In Brooklyn, also, the disease has been increasing. On February 27th 8 cases were discovered in three adjoining tenement houses, and on March 1st 11 cases occurred in a single large house.

APPOINTMENT OF STATE HEALTH COMMISSIONER. — Governor Odell has appointed Dr. Daniel Lewis, of New York, State Health Commissioner, to serve until December 31, 1904. The functions of the commissioner are the same as those of the recent State Board of Health, of which Dr. Lewis has been president since 1895.

GIFT TO POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL. — The Post-Graduate Medical School and Hospital has received an anonymous gift of $15,000, from a friend of the institution, for the purpose of supporting in perpetuity three beds in the babies' wards of the hospital.

Miscellany.

INFORMATION FOR CANDIDATES SEEKING EMPLOYMENT IN THE ARMY.

As a result of the reorganization of the Army by Act of Congress approved February 2, 1901, there are 129 original vacancies as assistant surgeon to be filled.

The prescribed age limit of candidates will be

rigidly adhered to, and it will be useless for those who are more than twenty-nine years of age to apply, unless they have had previous service as mentioned in the circular. The requirement of hospital experience or its equivalent in private practice will also be insisted upon. Hospital work as a student will not be regarded as fulfilling this requirement; experience as a physician after graduation is what is meant. Two years of private practice will be considered an equivalent of one year's hospital experience.

Army medical boards will be convened at an early day in Washington and in San Francisco, and examinations will be begun as soon as possible.

Copies of a "Circular of Information" may be obtained upon application to War Department, Surgeon General's Office, Washington.

The Medical Corps of the Army, as increased from a total of 192 to 321 medical officers by recent Congressional action, consists of a surgeon general with the rank of brigadier general, 8 assistant surgeons general with the rank of colonel, 12 deputy surgeons general with the rank of lieutenant colonel, 60 surgeons with the rank of major, and 240 assistant surgeons with the rank of first lieutenant, mounted, for the first five years, and the rank of captain, mounted, thereafter, until promoted to major.

Section 1172, Revised Statutes of the United States, provides that "No person shall receive the appointment of assistant surgeon unless he shall have been examined and approved by an army medical board, consisting of three surgeons or assistant surgeons, designated by the Secretary of War; and no person shall receive the appointment of surgeon unless he shall have served at least five years as an assistant surgeon in the regular army, and shall have been examined and approved by an army medical board, consisting of not less than three surgeons, designated as aforesaid." The act to increase the efficiency of the military establishment of the United States, recently approved, further provides "that the period during which any assistant surgeon shall have served as a surgeon or assistant surgeon in the Volunteer Army during the war with Spain or since shall be counted as a portion of the five years' service required to entitle him to the rank of captain.

All vacancies are filled by appointment to the junior grade (first lieutenant). Promotion through the intermediate grades of rank from that of captain to that of colonel is by seniority, but there is an examination for the rank of captain and another for that of major, to ascertain the fitness of the officer for promotion. Advancement to lieutenant colonel and colonel takes place without further examination. The surgeon general is selected by the President from among the members of the corps.

The physical examination comes first in order, and must be thorough. Candidates who fall below sixty-four inches in height will be rejected. Each candidate is also required to certify "that he labors under no mental or physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required." Errors of refraction, when not excessive, and not accompanied by ocular disease, and when correctible by appropriate glasses, are not causes for rejection.

The professional examinations are conducted by both written and oral questions, upon anatomy, physiology, chemistry, hygiene, pathology and bacteriology, therapeutics and materia medica, surgery, practice of medicine, obstetrics and the diseases of women and children. Examinations are also conducted at the bedside in clinical medicine and surgery, and operations and demonstrations are required to be made by the candidate upon the cadaver.

Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are essential to candidates seeking admission to the Medical Corps of the Army, who will be expected to present evidence that they have had at least one year's hospital experience, or the equivalent of this in practice.

Obituary.

GEORGE H. BIXBY, M. D.

Dr. George Holmes Bixby died in Boston, February 26th. He was born in 1837 at Parimaribo, S. A., where his father was United States Consul. He received his education at Williams College and at the Dartmouth and Harvard Medical Schools. He also studied in Vienna and Paris. He served in various capacities throughout the Civil War. Later he took up gynecology as a specialty and was associate founder and editor with Dr. Horatio R. Storer of the *Gynecological Journal*, was a member of various medical societies and contributed many articles to medical journals. His later years were spent in a condition of invalidism, which prevented the active practice of his profession. He leaves one daughter.

Correspondence.

AN EXPLANATION FROM THE MASSACHUSETTS GENERAL HOSPITAL.

Boston, March 4, 1901.

Mr. Editor: — In your issue of February 28th you published a communication entitled "Should a Hospital Charge for Information about Patients?"

For the benefit of your readers, I wish to say that the Massachusetts General Hospital does not plead guilty to the charge of receiving money for giving information about patients to the physicians who send them here.

If a physician has asked for a *full copy of the record* of a patient, a charge has sometimes been made for making the copy. Your correspondent did not ask for a full copy and the bill was sent to him through a clerical error. If the same thing has ever happened to any other member of the profession, I shall be glad to have him communicate with me on the subject.

Very sincerely yours,

Herbert B. Howard,
Resident Physician.

METEOROLOGICAL RECORD.

For the week ending February 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...17	29.60	32	36	29	78	63	70	N.W.	N.W.	9	12	C.	C.	T
M..18	29.62	34	40	27	77	62	70	W.	N.W.	6	10	F.	C.	—
T...19	29.55	34	40	27	76	58	67	W.	W.	10	12	C.	C.	—
W..20	29.45	28	36	21	72	65	68	W.	W.	11	12	C.	O.	—
T...21	29.75	22	27	17	64	44	54	W.	W.	12	17	O.	C.	T
F ..22	29.86	23	30	16	59	48	54	W.	S.W.	9	12	C.	F.	—
S...23	29.97	22	30	14	74	44	59	W.	N.E.	11	6	C.	O.	T
☞	29.69		34	22			63							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY, 23, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1371	392	22.45	15.16	1.75	.36	2.69
Chicago. . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	223	55	14.49	21.74	.45	.45	1.35
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	123	46	32.50	19.52	—	8.13	.81
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—
Providence .	175,597	58	18	18.92	27.52	—	—	3.44
Boston . . .	560,892	238	70	23.10	19.94	2.94	.42	7.14
Worcester. .	118,421	32	9	15.60	28.08	—	3.12	—
Fall River. .	104,863	37	9	27.00	19.60	—	2.74	2.74
Lowell . . .	94,969	41	11	7.32	21.96	—	2.44	2.44
Cambridge .	91,886	26	8	19.23	34.61	—	3.84	7.68
Lynn. . . .	68,513	31	5	19.35	12.90	—	—	3.23
Lawrence . .	62,559	23	9	17.36	4.34	—	—	—
New Bedford.	62,442	35	15	22.88	37.18	5.72	—	2.86
Springfield .	62,059	24	3	4.16	24.96	4.17	—	—
Somerville .	61,643	24	7	33.28	41.60	—	—	12.48
Holyoke . .	45,712	19	9	31.56	15.78	—	—	—
Brockton . .	40,063	14	3	7.14	42.84	—	—	—
Haverhill . .	37,175	14	1	28.96	21.42	—	7.14	—
Salem . . .	35,956	25	6	—	24.00	—	—	—
Chelsea. . .	34,072	8	3	12.50	—	—	—	—
Malden. . .	33,664	11	3	—	36.36	—	—	—
Newton. . .	33,587	8	1	—	25.00	—	—	—
Fitchburg . .	31,531	7	1	28.56	14.28	—	—	—
Taunton . .	31,036	15	6	13.33	19.98	6.66	—	—
Gloucester .	26,121	10	1	—	20.00	—	—	—
Everett. . .	24,336	6	—	—	16.67	—	—	—
North Adams	24,200	7	2	14.28	57.12	—	—	—
Quincy . . .	23,899	9	2	33.33	11.11	—	—	22.22
Waltham . .	23,481	7	—	42.84	14.29	—	—	—
Pittsfield . .	21,766	—	—	—	—	—	—	—
Brookline . .	19,935	6	3	33.33	16.67	—	—	—
Chicopee . .	19,167	3	1	—	—	—	—	—
Medford . .	18,244	7	1	—	28.56	—	—	—
Newburyport .	14,478	6	1	—	50.00	—	—	—
Melrose . .	12,962	3	—	—	—	—	—	—

Deaths reported 2,481; under five years of age 702; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 585, acute lung diseases 427, consumption 265, diphtheria and croup 72, diarrheal diseases 44, scarlet fever 36, influenza 27, typhoid fever 9, whooping cough 11, measles 14, cerebrospinal meningitis 12, smallpox 9.

From whooping cough New York 3, Pittsburg 4, Providence, Boston, Somerville and Holyoke 1 each. From cerebro-spinal meningitis Worcester 4, Lynn 2, Boston, Somerville, Gloucester, Lawrence, Brookline and Fitchburg 1 each. From scalet fever New York 24, Boston 7, New Bedford 2, Baltimore, Springfield and Taunton 1 each. From typhoid fever New York 5, Baltimore, Boston, Cambridge and Haverhill 1 each. From measles New York and Pittsburg 5 each, Boston 4. From smallpox 9 cases in New York City.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099 for the week ending February 9th, the death rate was 19.8. Deaths reported 6908; acute diseases of the respiratory organs, (London) 397, whooping cough 129, diphtheria 101, measles 57, fever 44, diarrhea 40, scarlet fever 26.

The death rates ranged from 12.3 in Cardiff to 29.5 in Norwich: Birkenhead 17.5, Birmingham 20.2, Blackburn 18.4, Bolton 15.1, Bradford 15.1, Brighton 24.2, Bristol 21.5, Burnley 18.6, Croyden 12.4, Derby 17.6, Gateshead 20.4, Halifax 20.0, Leeds 19.6, Leicester 16.2, Liverpool 27.9, London 18.7, Manchester 24.7, Nottingham 21.4, Plymouth 22.6, Sheffield 20.0, Swansea 21.4, West Ham 14.4, Wolverhampton 19.6.

RECENT DEATHS.

THOMAS RILEY, M.D., M.M.S.S., of Adams, died March 4, 1901, aged fifty-seven years.

THEODORE GIDDINGS, M.D., M.M.S.S., died in Housatonic, December 28, 1900, aged sixty-four years.

FREDERICK LYMAN THAYER, M.D., M.M.S.S., died in West Newton, March 4, 1901, aged fifty-three years.

DR. ABBOTT HODGMAN, of New York, died on February 26, from cardiac disease, in the sixty-ninth year of his age. He was born in West Townsend, Mass., on November 15, 1832. He studied for a time at the Dartmouth Medical College, and was graduated from the Medical Department of the University of the city of New York in 1858. In 1859 he was attached to the hospital staff on Blackwell's Island, and afterwards was in charge for eight years of the Medical Department of the city's prisons. He had practiced in New York for over forty years.

BOOKS AND PAMPHLETS RECEIVED.

Malaria and Mosquitoes on the West Coast of Africa. By Dr. Hans Ziemann, Staff Surgeon, late Government Physician in Camaroon. Reprint. 1901.

A Medico-Legal Manual. By William W. Keysor, Lecturer on Medical Jurisprudence in the Omaha Medical College, etc. Omaha: Burkley Printing Company. 1901.

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Address.

THE STORY OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.[1]

BY J. G. MUMFORD, M.D., BOSTON.

THE story of the Society for Medical Improvement is not so much a history as it is a series of biographies. As a history, it is commonplace enough, and interests us because it runs back nearly three-quarters of a century, and contains the names of a good many well-known men. Indeed, we may divide its life into three generations. To do so gives it a rather personal and family interest. A number of us can actually point to a grandfather among the early members. It is none the better for this, perhaps, but it is better than most societies, I believe, and I hope to show some reason for this belief. Its history has been sketched briefly more than once before. They used to have anniversary dinners in the old days, when men would talk, sing songs and poetize. The story of the founders was often told. On the fortieth anniversary, Dr. Spooner, a surviving founder, wrote a letter about it. That we have. In 1880 Dr. J. C. White made a careful and concise statement of the aims and the work accomplished; and in 1894 again there was an overhauling of accounts, when the Observation Society joined us; but now we are at the beginning of a century, and setting up in a beautiful new hall, so that I am moved to write down in some sort of order the tale of the years that are past, and of the men who lived through them.

It is easy to think of the life of this society as composed of three generations, and it is a rather striking fact that with the passing of each generation there does indeed appear a new era. First there were those ancient men, our professional grandfathers, with their limited ideas of science as we know it; their strenuous gropings in the dark; their earnestness in small things; their blind pathology; their empirical therapeutics; their almost pathetic struggling toward the light. Then there came the second generation, growing out of this first one, the adolescence, the development of it, as it were. The sudden leap forward is amazing, even to one reading these stately old Records of ours. In ten years' time, from 1845, a whole new vocabulary appears. First there came statistics. Then there came the microscope; then there came ether; then there came a burst of scientific enthusiasm and progress such as, up to that time, the world had never seen. This second period, the period of our fathers, extended down to our own time. It saw the development of anesthetics, and of the new pathology. It lived through the Civil War. It reaped the benefit of the great forces which made neighbors of the most distant scientific communities, and stimulated the expansion of modern knowledge.

[1] Being the Story of the Society, read January 21, 1901; the occasion, the opening of Sprague Hall in the new Medical Library Building, The Fenway.

And so we come down to our own era. What shall we call it? Many great names claim it — Listerism or Pasteurism; or the Age of Antiseptics; or Bacteriology — whatever else it may be, it is certainly the age of surgical expansion. And to no age has belonged more pre-eminently the motto, *Magna est veritas et prevalebit.* It is through all this, as it was manifested here in Boston, that the Records of the Improvement Society lead us.

There is no mystery or tradition about the beginnings of this society. It started in full-fledged, with a beautifully-written constitution and by-laws, on the 19th of February, 1828. There were eleven members. They met at the house of Dr. John P. Spooner, and they proceeded to organize themselves into a society with as much solemnity and earnestness as the Federal delegates from the thirteen States. Years afterwards Dr. Spooner used to say that he started the society. At any rate, it was a Boston affair, pure and simple. It was not the outgrowth of French ideas, as was the Observation Society, started later. Eleven young gentlemen, recently established in the practice of medicine, (on the suggestion of Drs. Spooner and John Ware) thought they would meet together on a sort of medico-social basis twice a month. These gentlemen were Zabidiel B. Adams, John P. Spooner, George W. Otis, Jr., Joshua H. Hayward, D. Humphreys Storer, Horatio Robinson, James M. Whittemore, J. G. Stevenson, Joseph W. McKean, Enoch Hale and John Ware. To this company were added fourteen others in the course of the year. So with a membership of 25 the society began its career. James M. Whittemore was the secretary, and his beautifully kept records run through the early months of the society's life. In those days the proceedings were delightfully informal, as one would expect. The men were mostly young and well known to each other; there was no president, or permanent chairman. There were no regular written papers, as has been the custom for so long now. When the members met together, each apparently bursting with his desire to impart knowledge, they were called on in alphabetical order for their communications; and to judge from the written record, each man availed himself of his opportunity.

The first regular meeting for the discussion of medical topics was held on the 10th of March, 1828, and Dr. James D. Stevenson opened the highly important proceedings of this society, which have gone on for seventy-three years.

Dr. Stevenson's proposition was this: In the case of a child born while the mother is in a standing position, with rupture of the cord, "Is there any special danger to mother or child?" They began by having a regularly appointed subject for discussion, in addition to the more informal communication, and the first important topic was, "What are the earliest diagnostic symptoms of croup?" And these two topics, the one obstetrical, the other dealing with infectious diseases, have been always the leading topics of

discussion throughout the life of the society. On this first evening the conclusions were that the croup subject was an interesting one, and that it should be continued at the next meeting. Out of this custom of calling on members alphabetically grew the practice of recording accurately the attendance at each meeting; so that to this day the actual attendance at every individual meeting for seventy-three years is on record.

Two other events of interest connected with the society occured in this year of 1828: The starting of the Anatomical Cabinet by the society, and the founding of the *Boston Medical and Surgical Journal* by gentlemen who were members of the society. The cabinet was an ambitious project. It continued to grow for many years. It was fostered mostly by the enthusiasm of one man; it published a printed catalogue; and it lies buried in the Warren Museum of the Harvard Medical School. The *Boston Medical and Surgical Journal* was not an original endeavor. It arose out of two other journals — the *New England Journal of Medicine and Surgery* (1811), and the *Boston Medical Intelligencer* (1823), which were consolidated under its name; and it owed its initial success to the editorial endeavors of Walter Channing, J. C. Warren and John Ware.

During those early years members of this society met at each other's houses, and owing to this agreeable arrangement, doubtless, I find that the total expenses of the society for the first year were $7.50. It soon became evident to our progenitors that a more systematic method of work would improve the meetings; and with that in view, standing committees were appointed, whose duties were to present reports on divers topics of medical interest. In the same year of 1829 the society resolved to publish Transactions. These ambitious extensions in no long time brought about the necessity for larger accommodations. Therefore, in 1830, two years after the founding, a room was hired for the meetings, and for the cabinet, over the shop of Smith & Clark, druggists, on Washington Street, the price paid being $25 a year. In those new surroundings there seems to have been the same difficulty in finding readers of formal papers that we sometimes experience now; so that it was even found necessary to impose a fine of $2.00 for failure to read.

As one plunges through the sea of old Records one is constantly tempted to seize upon some fine old medical name, bring it to the surface and exploit it. One could gossip for days about those old times and men and things. I will mention a few of the men in their order. There were those who founded the society, whom I have named. Then in 1829 came John Homans, Sr., John D. Fisher and Francis G. Higginson; 1831, John B. S. Jackson; 1832, Charles T. Jackson and Joseph Roby; 1833, Charles G. Putnam and John C. Hayden; 1834, Henry I. Bowditch; 1835, Henry G. Clark and J. Mason Warren; 1836, George C. Shattuck, Jr., Oliver Wendell Holmes and George H. Bethune. In 1837 this society of young men took unto itself as honorary members three distinguished gentlemen of a former generation: George C. Shattuck, Sr., James Jackson, Sr., and J. C. Warren; in 1838, Jacob Bigelow as a regular member, and Edward Reynolds, S. D. Townsend and Jeffries Wyman; in 1839, Samuel Parkman. I believe every one of these names is well known to all of us, and to the older members of the society must call up a flood of interesting reminiscence and anecdote. Now there is a curious thing about the steady, undeviating progress of this association of ours — it is ever unemotional, unruffled by stirring events and men. Though Charles T. Jackson and J. C. Warren and Henry J. Bigelow were members, the discovery of ether raised scarce a ripple in their debates. These men themselves, and their sons and brothers, went into the army and navy in war times. Yet this is all the official note we see, written three months after the fall of Sumter, that, "owing to the disturbed political condition of the country, the society judges it wise that the meeting of the American Medical Association be postponed for one year." And through all this time, in its quiet way, the machinery of the society and its habits and its traditions were gradually crystalizing. The first prudential committee is mentioned as a creation of 1837. It consisted of Messrs. Ware, Fisher, Gould, Palmer and Roby — five in all; a committee of five it has remained ever since. For more than forty years its duties seem to have been largely perfunctory, certainly not onerous, consisting for the most part in approving the names of candidates for membership. And during all those former years it was composed of some of the oldest members of the society — Dr. Jacob Bigelow and Dr. D. H. Storer served until extreme old age; also Dr. Ware and Dr. Gould for many years.

Dr. Jacob Bigelow was constant in his attendance at the society meetings. Already of mature age, vast experience and deeply learned in the natural sciences, his presence was a great stimulus to his younger companions; and, unlike his distinguished son, he elicited, rather than depressed discussion. In that first era, which for convenience is limited to the years before 1846, one of the most conspicuous figures was Dr. Oliver Wendell Holmes. For two years he was secretary, and the volume of his records, in his beautifully precise, feminine handwriting, makes glad the eye of the reader as much as his quaintly delicious phraseology warms and uplifts the heart.

I suppose that to the older members among us the name of Dr. J. B. S. Jackson, more than that of any one man, stands for the work of this society. Elected to membership three years after the small beginnings of 1828, he continued active in his interest until 1879, only twenty-two years ago, and during all these forty-eight years his enthusiasm in the study of morbid anatomy seems never to have flagged. Wherever one opens the old Records, there will be found a paragraph devoted to Dr. J. B. S. Jackson and his unfailing specimen. And, especially in the first twenty years

of the society's life, his enthusiasm for the autopsy room might be described in the gamin language of today as something fierce. Of course, in those days, pathological surgery supplied little material, and it is a curious commentary that when one reads in the Records of one day some surgeon's clinical account of a desperate case, one may expect to find in a subsequent Record *not* the story of the operation, but Dr. J. B. S. Jackson's account of the autopsy. Indeed, in those early years, the number of morbid specimens shown was astonishing.

The vigorous growth of the young society suffered little abatement up to the time of the Civil War. It was small, as we reckon figures; it was somewhat exclusive; it was composed of busy workers in all fields of medicine; it afforded them all their equal and almost their only opportunity for speaking and publishing. It printed "transactions," it represented teachers, practitioners and hospital staffs; and in a very real sense it controlled the practice and the medical fortunes of this community. In the very early years, social features of these meeting were not lacking. The members celebrated an anniversary day in February; and annually, for about twelve years, dined together at each others' houses. Here is Dr. Holmes' account of one of these gatherings: "The Anniversary Meeting of February 7th, 1838, Dr. Ware in the chair. At 7 o'clock the society disposed itself at table, animated by the presence of the dinner, which, by its outward arrangement and intrinsic excellence, did honor to the taste and judgment of its providers. Dr. Roby favored the society with an ingenious, pointed and witty address, touching the peculiar disposition of the mind required on entering on the study of medicine, and the effects which the practice of this society exercises upon our intellectual and social condition." Dr. Holmes then read a poem. "No incident occurred to interrupt the festivities of the evening, with the exception that a couple of our most efficient members were interrupted for a short time by accidents too frequent on these occasions. An amiable indiscretion, dating undoubtedly from some bright May morning, was visited upon the heads of Drs. Ware and Adams, by a midnight call into the midst of a February snow storm. The hilarity of the company was temporarily diminished, and the census of the city permanently increased during their absence."

So the society was small, more like a club. Of the 35 members, usually 25 attended. Admission to membership was difficult. All were friends. The minutes, written with the greatest care and detail, covering sometimes eight or ten pages of a large sheet, give an idea of the daily life, pursuits and purposes of the various members; allowing, of course, for the point of view of the individual reporter. But there is no disguising that ancient courtesy of the formal type, which we expect and which still lingers obscurely among us; known better, perhaps, to our profession than to others. The spirit of these ancient times still pervades the pages, and as one reads, the men themselves become very real and present.

These social features and small friendly gatherings did not last many years. After 1840 the record of anniversary dinners ceases, though an occasional sporadic festivity occurred from time to time thereafter. The nineteenth anniversary of the founding was celebrated at the house of Dr. Reynolds, and a poem was read by Dr. Holmes. And again, more than twenty years later, on the fortieth anniversary of the founding, a very real and serious jubilation took place. Dr. D. Humphries Storer, an original member, and now growing old, entertained the society at his house. Doubtless some of our present members recall the occasion. A delightful account of the evening is given in the Records, and a copy of a letter from Dr. Spooner, then living, in which he tells the story of the founding. But after all, social matters have concerned us little for the last sixty years. It was toward the end of this first period in our history, August 14, 1843, that a gentleman was elected who is now, and has been for many years, the Nestor of this society, Dr. Samuel L. Abbott. His sponsor was Dr. Storer. Dr. Samuel Cabot, Dr. G. Wiley and Dr. William S. Coale were elected in the same year, and their names seem to carry us back to a very early era. Besides being a scientific and social society, this organization attempted to meet other needs in those early days. It was a journal club. It started a library. It collected a museum. And in other ways that I have named, it flourished as a centre of medical life in Boston.

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The second era or generation in the life of our society is so full of interest, and to many of us is so familiar, either by experience or story, that it is not easy to condense it into a few dry words. I have characterized it as the age of ether. It was that; it was much more. Strong names blazon its course, many of them coming down through the years. At the very beginning of it, and perhaps more conspicuous than any other one man, comes Henry J. Bigelow — leaping upon the stage, as it were. That capital piece of memoir writing, I think the very best medical biography known to me, Hodges' Life of his great colleague, has reached us recently, and the tale he tells of Bigelow's career renders futile my feeble words here. But there were others: Samuel Cabot, Jeffries Wyman, Clark, Lyman, Townsend, Gay, Derby, Minot, Williams, Thorndike, Homans (John and Charles), Hodges, Borland, Reynolds, White, Green, Blake, Channing, Cheever, and more if one were so minded; for who may say what name will live through this and future generations? Certain names, then, and certain events dominate the Record: following the years, one sees a man's entrance, his feeble beginnings, and his increase in force and courage. Then his youthful modesty thrown aside, his earnest setting forth, his dominating tone; and then suddenly, mostly, he disappears from our pages. In the first era it was Storer and Ware, James Jackson,

J. C. Warren, Jacob Bigelow who successively engrossed us. Now these names cease mostly, and Henry J. Bigelow, J. Mason Warren, Cotting, Calvin Ellis, George C. Shattuck and their like hold the stage. And through it all, year in and year out, generation after generation, sounds the steady, persuasive voice of J. B. S. Jackson — pathologist, scholar, teacher. Through many of these years, the clerkly hand of William M. Morland traces the Record — a name now only to most of us; notable to me for the scolding given him by Henry Bigelow, asserting that his part in the discussions was constantly inadequately reported; the careful scribe, himself, bearing witness to the chastisement. Thereafter Dr. Bigelow's words were most faithfully and accurately recorded.

I have mentioned the all-embracing functions of the society. Until near the beginning of this era it was the only one of its kind. The programme of each evening we should consider enormous in variety and extent. Here is a sample day, taken from the Records of 1848. In addition to numbers of pathological specimens, presided over by J. B. S. Jackson, the programme read: (1) "Oil from Fatty Liver," (2) "Frogs with Additional Extremities," (3) "Diverticulum from Small Intestine," (4) "Intestinal Calculus from a Horse," (5) "Cast of Thorax to show Cardiac Enlargement," (6) "Necrosis after Amputation," (7) "Compound Fracture of Thigh," (8) Cauterization in Croup" (oral), (9) "Double Urethra," (10) "Convulsions in Typhoid," (11) "Fatal Hemorrhage in Dysentery," (12) Abscess of the Ear," (13) "Asiatic Cholera."

Now, as early as 1845, Henry J. Bigelow's voice was heard in this assembly, and the next year he began to publish that series of papers on ether, scarcely mentioned here, which gained him so great a notoriety. Other gentlemen, conspicuous in the ether controversy, were members of this society at the time; notably, J. C. Warren and Charles T. Jackson. Of them we hear not at all on this subject. George C. Shattuck was secretary then, and a careful reading of his elaborate Minutes gives no inkling of the raging of the etherial storm. In November, 1846, it is recorded that "Dr. H. J. Bigelow read a paper on the recent discovery and practice of the inhalation of a vapor so as to produce insensibility during the performance of surgical operations and the extraction of teeth." The amazing fact in regard to this famous communication is not a rising storm of criticism and interest, or any slightest evidence of appreciation of what it all meant, but that the communication was dismissed with a few languid comments by Drs. Hayward and Hale on the propriety of hospital surgeons using a secret remedy, as Morton's "letheon" then was.

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After Henry Bigelow and J. B. S. Jackson, the most conspicuous contributor to the meetings of this middle era was J. Mason Warren. His remarks were nearly always on surgical cases — many of them of great interest thoughtfully and forcefully presented. To judge from the accounts in the Records, Dr. Warren must have taken a keen interest in curious and unusual subjects; freaks of Nature, monstrosities and the like, were collected and reported by him. He showed the society the Scotch Giant and the Aztec Children, and among other surprising cases, reported at length this one of extraordinary fecundity: A woman living at 100 West 27th Street, New York City, gave birth in 1858 to a boy; July 30, 1859, boy and girl; March 29, 1860, boy and girl; March 1,1861, two boys and one girl; February 13, 1862, two boys and two girls — twelve children within five years; and they all lived.

It would be extremely interesting to take any single subject, or series of cases, and trace it through these eighteen volumes of Records: Erysipelas, puerperal fever, the radical cure of hernia, the treatment of ovarian tumors occupied successively the attention of the society, and as men and methods changed, came to be looked upon very differently, as we may suppose.

It is interesting, too, to note the repeated demonstration of the well-known medical truism that rare cases seldom come singly: Dr. Jacob Bigelow shows a thoracic aneurism; at the next meeting, Dr. Jackson shows two. Dr. Samuel Cabot reports a foreign body in the trachea; at the next meeting, Dr. Henry J. Bigelow reports another. Dr. Warren reports a death from chloroform; Dr. Bethune reports a second. Then there are to us the provokingly suggestive discussions hovering around some subject now made complete by scientific demonstration. The beginnings of bacteriology flash upon us as out of the Middle Ages; to be succeeded only by guesswork and darkness. In 1862, for instance, Dr. Jeffries Wyman reported observations on dust, and pointed out its composition as shown by the microscope; spores, hairs, minute eggs, pus corpuscles. And Dr. J. C. White said that while in Germany he had seen pus corpuscles from the air caught on plates in the hospitals. Then about the same time, the frightful extent of hospital gangrene in army hostitals exercised the profession, and the almost intelligent use of antiseptic dressings became especially noticeable. So it was with the recollection of these frightful surgical conditions fresh upon them, that American surgeons welcomed the principles of Lister, even more eagerly than did their European colleagues. The early carbolic method was urgently advocated in 1867 by Drs. George Derby, J. C. White and Upham; and Dr. John Homans spoke of the common use of permanganate of potash in the maternity wards at Vienna in 1865. Curiously enough, as illustrating the familiar scepticism, born of sad experience, Dr. Hodges heard with incredulity their enthusiastic claims. The inception, too, of many medical and surgical methods for long years familiar to us is seen to grow out of these debates: Dr. Samuel Cabot was the first to point out and insist upon the value of ether in the diagnosis of obscure abdominal tumors. Dr. J. B. S. Jackson repeatedly asserted the identity of diphtheria with

membraneous croup? Dr. Jacob Bigelow showed the value of the clinical thermometer in estimating the range and course of the temperature in typhoid fever. Dr. Coolidge urged the importance of carbolic acid and glycerine for preserving dissecting-room subjects. Dr. Fifield pointed out that a twisted ovarian tumor may be the cause of an acute peritonitis. And on January 11, 1864, Dr. H. G. Clark reported a successful case of ovariotomy with recovery of the patient. On the other hand, many of our younger members of the profession are apt to forget how extremely recent are some of our most important therapeutic agents. Thus in 1870, Dr. Francis Minot stated that the treatment for rheumatism was colchicum; the salicyllates being unknown; and in 1884 antipyrine and cocaine were suggested for the sake of their now familiar properties. What we call "teno-synovitis" is a condition in the daily experience of every out-patient surgeon; yet thirty-five years ago Dr. Fifield reported a case of painful crepitus in the tendons, and inquired into its cause and treatment. I suppose that no one surgical subject, after the discovery of ether, has attracted more wide-spread interest and controversy in our community than the disease which Dr. Fitz has called "appendicitis"—and the interest in this condition is by no means recent. Cases of tuphloenteritis appear on our Records so long ago as 1836. And towards the end of the second era in the life of the society Dr. J. B. S. Jackson presented a communication on the prevalence of this disease from 1840–1867. It had been asserted that the condition was more common in ancient times, but Dr. Jackson found in our Records the reports of 16 cases quite evenly distributed, and covering a period of twenty-seven years, an average of less than 5 a year.

Now, the two great events of this second era were the introduction of ether, and the Civil War. Their effect upon the lives and practice of our fathers must have been enormous; and if one could blot out this era, skipping from the year 1845 to the year 1868, the advance of Science in the interval would seem to us still more startling. Yet those two great events, as I have said, are little more than touched upon in the Records. Their overwhelming presence seems to have been so great, and their importance so obvious, that secretaries referred to them no more than they would have referred to the changes of the seasons.

Indirectly, however, the presence of war and the use of ether had their bearing on the type of subjects discussed. Matters pertaining to surgery and to camp sanitation had a large prominence; while certain other subjects were conspicuously lacking: Thus the great class which we include under the names neurasthenia, neuroses, hysteria, and the various forms of mental disease were rarely mentioned.

Noticeable, too, is the influx of new words —diagnostic and therapeutic— which flood the Records at definite periods, corresponding to the introduction of new members to the society. The resounding terms of dermatology come prominently to the fore with the return of Dr. J. C. White from Europe; and speculation as to the causes of infectious processes becomes rife after the Civil War. Many of our members, more especially Henry J. Bigelow, R. M. Hodges and George H. Gay, bestirred themselves actively as surgical advisers and hospital inspectors at the front, and their published reports are full of interest to us in these days of renewed warfare.

The limits of time and space prohibit my more than referring to the numberless interesting cases and discussions which fill the Records and measure the progress of advancing Science: the early operations on the ovaries; for abdominal abscess; for hernia; the diagnosis and treatment of pelvic disease; operations on the joints; paracentesis; orthopedic surgery; operations on the eye; hygiene; statistical reports; public health— all these, and a hundred kindred matters, occupied earnestly the men of that time, and their discussions developed always more and more on lines with which we are today familiar.

During the past seventy-three years, we have had many domiciles. At first the members met in each others' houses. Then they met in the Washington Street rooms, over Smith and Clark's drug store; then they met in the Tremont Street rooms, over Burnett's (or Metcalf's) shop; then in Temple Place; after the removal of the Medical Library to Boylston Place they followed it there; and now to this distant Fenway.

For the beginning of the third era in the life of the society, I have chosen the year 1868. This was the fortieth anniversary. It marked approximately our first appreciation of aseptic surgery and bacteriological studies. And beginning with this year, there came to join the society a number of those men who now, in their very prime, we recognize as our most conspicuous representatives. It is for this very reason, because this third era is our own era, that one must limit oneself to brief and formal words in dealing with it. Even the naming of names is invidious, except so far as, from time to time, they conspicuously cumber the Records.

However, early in this era, coincident with changes in our personnel, there began one of those declines which every generation has known. The old men ceased to speak; for a time their juniors failed to take their places. And this has always been noticeable to me, that the modest, rising practitioner will surely restrain himself until increase of stored-up knowledge bursts forth to the enlightenment of his fellows. So these men, now our seniors, then young, appear seldom upon our Minutes, and for a space of several years an apparent pause came over our discussions. Yet those were not inactive days. Many men, fresh from the universities of Europe, were developing our laboratories; a new impetus was given to therapeutics and surgical endeavor; Bigelow was perfecting and publishing the two works which especially have made him famous, on the "hip" and "stone"; hospitals were growing; the university was expanding; and new methods of

teaching were absorbing the profession. It seemed almost as if men were too busy to attend meetings so largely clinical as ours. So it came about that in 1880 the society found itself in a condition of semi-decline, and a strenuous effort was made to re-establish it in its ancient vigor. The man of the hour was our distinguished friend and first president, Dr. James C. White. Dr. White had been a member of the society for twenty-one years. He had known well most of its older members. Its objects and traditions and successes were familiar to him, and the authorities therefore resolved to invest him with the office of permanent chairman or president.

Thus, for the first time, the society became possessed of a responsible head. On taking the chair, Dr. White addressed to the meeting a few pithy, statistical words. He reviewed briefly the history of our organization. He showed the work done in former years, as measured by printed pages of Transactions, and the recent work. He called to the attention of members how great had been their influence upon practice, teaching, study and writing; and how deterioration had come with time. Not that work done was less or of poorer quality, but that less eagerly was it given to a listening world. And he enjoined them to reassert themselves, to publish again the results of their labors, and again to push to the fore the position of Boston medicine.

COPY OF DR. J. C. WHITE'S ADDRESS GIVEN IN 1880.

Gentlemen of the Improvement Society: — At your last meeting you honored me with the chairmanship of the society until 1881. Permit me to thank you for it sincerely, and to assure you that I accept the position with full consciousness of the character of its duties. I accept it because I have entire confidence in the success of the plan you have adopted for the improvement of the society, knowing that it is upon your efforts, and not upon my own, that its future depends.

I have thought that the following brief historical data may be of interest at this time.

The society was founded in 1828, and incorporated in 1839. During its first year it had 25 members of whom but 1, I believe, — one still active and honored among us — survives. At the publication of its first catalogue in 1853 the number of members had increased to 60, of whom 3 were honorary and 5 associates. In 1876, the date of our last publication, the regular members had increased to 79.

The immediate roll of the society is: Active members 91, associates 8, total 99; number of new members elected in the last two years, 23.

The first published records of the society appeared in the *American Journal of Medical Sciences* in October, 1848, during the secretaryship of Samuel Parkman, the twelfth in succession in that office. In January, 1855, their publication was transferred to the *Boston Medical and Surgical Journal*, with which it has remained.

		Pages.	Papers.	Pages.
1853, Vol. I.	1848–1853, Transactions,	358		
1856, " II.	1853–1856, "	354		
1859, " III.	1856–1859, "	313	21	202
1862, " IV.	1859–1861, "	258	34	259
1867, " V.	1862–1866, "	242	61	311
1876, " VI.	1866–1874, "	292	25	168
		1817	141	940

The current volume, beginning in 1874, amounts at present to 150 pages of Transactions and 80 pages of paper. The first two volumes contain simply the records of cases presented and the discussions thereon. The subsequent volumes contain not only such extracts from the Records, but in supplement form also the papers read before the society, and published in the *Boston Journal* and elsewhere. The above synopsis of the publications will show the comparative activity of the society in various periods of its existence.

But this society, which bears upon its rolls the names of the most honored physicians of our city within the present century; which has done so much for the advance of pathology and practical medicine, of which its extensive museum and valuable publications are permanent mementoes; the membership of which has been regarded throughout its fifty years as a high honor by the profession, young and old; whose meetings were long so full of interest and instruction — why is it that this society seems about to perish of its own will? Why is it that in the decade, 1856–1866 the Transactions covered 813 pages, papers 116=772 pages? While in the thirteen years which have since elapsed, 1866–1879, Transactions only 442 pages and papers but 318 pages, the publications of the last thirteen years not amounting to one-half of those of the preceding ten years.

Certainly the days of usefulness of such societies have not passed away. In all our large cities, centres of medical learning and seats of instruction, we find them in active and successful operation — nurseries of the most valuable scientific and practical contribution to our literature, arenas of truth-searching discussions. National and international societies, too, of the most important specialties, as well as general in character, have been organized within the last few years, and have contributed greatly to medical improvement, and have excited a good wide interest. All these bodies we find are incentive to the highest professional work, most useful stimulants to progress. In a neighboring city, in a select society like our own, the communications and discussions which characterize its meetings are of the highest excellence in points of originality and research, and exert a wide influence. Why is it that we in this society, its peer in quality of membership we ought to say, occupy a position so far, far behind? Is it indeed, as one of the leading Western journals has recently said, because we really are their inferiors, and in doing almost nothing are doing our best? It is true we are open to the reproach of being a very silent set here in Boston. We are not book makers, and those who know anything of the management of our journal will bear witness how difficult it has always been to obtain anything like a fair proportion even of papers from the local district it represents. But such reticence is only a fashion for which no better reason than influence of descent exists. It can be corrected not only for our own but for the world's good. Boston has, as she has always had, admirable physicians, who have no right to keep their stores of experience and learning locked up in miserly silence; who would find eager listeners anywhere. They are members of this society, and their eminence should not be confined to its consciousness. I am happy to be able to announce that I have met with the most hearty response from all with whom I have spoken of the claims of the society upon their tongues and pens. It signifies the sincere and active interest which still exists in it. It is this which places the success of the new departure beyond a doubt.

Let me state the plan of conduct of the meetings which it is my purpose to observe, if agreeable to you. At present the order of business is strictly fixed in accordance with the printed programme. I desire the liberty of changing this arrangement to suit the character of the communications as they may present themselves, that written or oral communications may take precedence at any time according to their respective importance. It is my intention that two communications shall ordinarily be presented, which shall be announced in the regular notices of the meetings; that these subjects shall be first discussed by one or two members whom I shall especially call upon, and that then they shall be open for general debate. Afterwards the reader will have opportunity of reply. In this way there will always be valuable matter

before the society, and assurance that communications will receive proper attention. Such special discussions will add greatly to the interest of the meetings and to the development of truth. They will be conducted, it need not be said, with that observance of courtesy and mutual consideration which have always characterized the proceedings of this society. It will assist the chairman greatly in the arrangement of business if gentlemen will inform him at the earliest moment of their intention to make communications, or to exhibit specimens of importance, and of course it is not intended that formal papers and discussions shall prevent the freest presentation of incidental communications and general debate. I would suggest, finally, the propriety of changing the hour of meeting hereafter to 7.30 o'clock.

These words were spoken twenty-one years ago. The burst of scientific enthusiasm, the enormous progress in all branches of medical work which have occupied the last two decades here in Boston, tell their own tale.

Unfortunately, perhaps, for the completeness of our Records, much of the best work done in Boston in recent years does not appear in our Transactions. The rise of new societies, local and national, has drawn away from us numbers of epoch-making papers. But many remain to illustrate our annals. Here are a few, hastily gleaned from the Records: In 1873 Dr. Cheever showed how the knee-joint may be opened for a loose body. In 1874 Dr. Thomas Dwight described his well-known method of freezing sections. In 1880 Dr. Hodges read his classical monograph on pilonidal sinus. In this year, also, Dr. Whittemore read a most valuable article on dispensary abuse — the first one published among us. In 1881 Dr. John Homans read his first series of ovariotomies, Dr. James J. Putnam his well-known article on locomotor-ataxia, and Dr. Hodges on railway spine. In this year, also, Dr. Calvin Ellis made his last public communication, "On the significance of albuminuria as a symptom." During these years of the early eighties Dr. Homans constantly addressed the society on the subject of abdominal surgery, and illustrated the feasibility of laparotomy for other than ovarian disease. In 1887 Dr. Ernst's paper on "rabies" is conspicuous. In 1889 Dr. Henry J. Bigelow appeared for the last time before the society to read an account of his identification of the famous Paré portrait. The extremely interesting series of debates on appendicitis began in 1887, and has lasted even to the present time, the early participants being Drs. Fitz, Cabot, Porter, Warren, Gay, Richardson, Homans, Elliot, Watson, and many others. Perhaps the most interesting and conspicuous meeting of the period was that of November 19, 1890, a memorial to Henry J. Bigelow. The profession gathered *en masse* to honor that distinguished man, then recently dead; addresses were made by R. M. Hodges, O. W. Holmes, Henry Lee, D. W. Cheever, Hasket Derby; and letters were read from R. H. Fitz and A. T. Cabot.

Thus we come down to the last event of importance which concerns us as a society — the uniting with the Boston Society for Medical Observation in 1894. Perhaps many of us have already forgotten the existence of that most useful organization. Founded in 1835, by the younger members of the profession, it continued in active, separate existence for almost sixty years; until, finally, its objects, practices and membership became so nearly identical with those of the Improvement Society that it was deemed best to unite the two under the title of the older organization. And we now here represent these two famous institutions.

So much for our story as I read it in our Records. Eighteen manuscript volumes: numberless printed transactions and papers, taken from the *American Journal of the Medical Sciences*, and the *Boston Medical and Surgical Journal*, tell it in exhaustive detail. Its rolls are adorned with famous names. Its purposes have been of the highest. Its vigor has been wonderfully maintained throughout the years. In this society alone is there room for many men of many minds. Here all branches of medical science may be discussed and special research popularized. Here are brought the questions of broadest interest; public hygiene, medical education, medical and surgical advance in diagnosis and treatment, and numerous other matters in which every educated physician should take an active interest.

With such a past, then, and such evidence of present vigor, let us believe that the Improvement Society may impress itself on the future and the coming century.

Original Articles.

NOTES FROM THE NEUROLOGICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.

Sudden (Apoplectiform) Bulbar Paralysis; Hemiplegia; Astereognosis.

BY W. E. PAUL, M.D., BOSTON.

Louisa H., fifty-one years old, came to the clinic in Dr. Walton's service. Eleven years ago she was suddenly unable to talk, but in a brief time the disability disappeared, leaving no traces of the attack. A year later, when the patient was forty-one years of age, speech was arrested in the middle of a sentence, she felt dizzy, and the left arm became numb and powerless. Consciousness was retained, vision was not disturbed and there was no vomiting. She could not talk plainly, and was unable to whistle. There was drooling, and on one or two occasions liquids returned through the nose. The left arm continued numb but gradually regained power. At the end of three months she was up and about with some improvement in all her symptoms. At no time have the symptoms grown worse.

Today, ten years after the attack, she talks in a mumbling fashion, unable to enunciate clearly any word in her ordinary speech. She cannot whistle, and she drools on her pillow at night.

There is no regurgitation of liquids through the nose. The left arm feels somewhat numb, dead-like, and the left hand cannot be used in buttoning, lacing shoes, or for the finer manipulations. There is no history of involvement of cranial nerves other than the hypoglossal and facial, nor was any history of impairment of motion of the left leg obtained, though the examination indicated some lessening of sensation of the sole.

Examination.—She was well nourished, ruddy, and clear in mind. There was typical bulbar speech; at rest the lips appeared flaccid; and puckering, compression, and separation of the lips were impossible except in very slight degree. The risorius muscles, the zygomatici, and other muscles supplied by the seventh nerves were normal on both sides. The tongue could be protruded without deviation a little beyond the lower lip, but the tip could not be directed toward the upper teeth or palate. It was impossible to groove the tongue. The palate reflex was normal; and no sensory disturbance could be discovered in the cranial nerves. The left hand could not make fine movements but the grasp seemed as strong as on the right. Tactile sensation was slightly blunted over the hand and fore-arm; at least the answer always was that the horse-hair and wisp of cotton felt plainer on the right. Pain sense (the skin was pinched) was decidedly blunted over the left hand, arm, shoulder and side of the neck, though not lost. The warm and cold test tubes were correctly named each time. Space sense was not lost, but it was impaired, as the points used required wider separation to be recognized as two on the left palm and dorsum; and the answers were less prompt. Pressure sense was altered as metallic substances were called soft. There was preservation of muscle sense, and localization of areas touched was perfect. Objects — a fifty-cent piece, a key, a knife — were unrecognized in the left hand, but were accurately named when in the right hand. The shape of a round tape measure and a fifty-cent coin could not be described, and both were called soft when placed in the left palm. Fibrillation was absent; and atrophy in moderate degree was observed only in the lips and tongue. The knee jerks were normal, there was no ankle clonus, the plantar reflex was absent in both feet, but the stimulation was not felt as plainly on the left sole as the right; the pupils were equal and reacted to light and accommodation. The visual fields were not limited. Nothing abnormal appeared in the examination of the heart and urine. The arteries were not remarkable.

The symptoms of this case, apart from the paresis of the arm, are those of ordinary bulbar paralysis; the peculiarity, on account of which the case is put on record, lies in the mode of onset. The most common type of bulbar palsy is of insidious origin and gradual progression; next in frequency comes the so-called polioencephalitis inferior, which may be acute or subacute, and either come to a standstill or progress; of great rarity are the cases of apoplectiform onset and bilateral lesion in which the palsy may progress or become stationary after more or less improvement. The case reported falls in the last category, and gives no history of change in the bulbar symptoms after the improvement in the first two months of the palsy. The danger of the future, however, lies in the possibility of further degenerative changes, which may begin at any time.

The nerve supply of the orbicularis oris is derived from the facial, but there is good reason to believe the nuclear origin of this supply is from the hypoglossal, either by fibres going to the facial nucleus or entering the facial nerve. "The transverse fibres of the tongue and the orbicularis oris can only contract together."[1] Further, "the orbicularis is always involved in degenerative disease of the hypoglossal nucleus, and escapes in disease of the chief nucleus of the facial."[2]

The labiolingual paralysis in the case reported may perhaps best be interpreted as depending solely on a lesion of the hypoglossal nuclei. It is difficult otherwise to account for the limited facial paralysis.

In the examination the sole of the left foot was much less sensitive to stimulation than the right, an indication that the lower extremity was affected by the original lesion, though no motor loss exists in the leg at the present time. The left arm recovered in large measure from the initial paralysis, but objects are unrecognized when placed in the hand. The existence of hemiplegia and astereognosis are complications of the bulbar palsy difficult to explain in a consideration of the pathology. Gowers[3] states that "These cases of sudden bulbar paralysis, it is probable, depend on softening from vascular occlusion," and adds, "There may be weakness of the limbs or an affection of sensibility, usually in the form of subjective sensations, rarely actual anesthesia." He does not, however, describe a case the parallel of the one under consideration in motor loss and sensory disturbance. It would seem that the lesion extended to the median fillet and pyramidal tract of the right side of the medulla.

INTESTINAL ANASTOMOSIS.

BY CHARLES G. CUMSTON, M.D., BOSTON.

THE question of intestinal anastomosis being a subject of great importance and interest to modern surgeons, it may not be a loss of time to examine the work done in this line by the older surgeons.

In reading a work of great merit, well worthy of the attention of surgeons of the present enlightened times, by the famous Ambroise Bertrandi, entitled "Traité des Operations de Chirurgie," published in Paris in 1769, I was much interested in his really remarkable chapter on hernia.

In it he says, in speaking of the manner of

[1] Gowers' Diseases of the Nervous System, Vol. II, p. 50.
[2] Loc. cit., Vol. II, p. 563.
[3] Diseases of the Nervous System, Vol. II, p. 574.

dealing with gangrenous intestine, that, in the third volume of the "Mémoires de l'Academie Royale de Chirurgie," on page 188, is to be found the following case: "A man, age fifty years, had a gangrenous hernia; it was necessary to resect about two inches of intestine. The surgeon then introduced into the gut a piece of calve's trachea, which had just been dried, then softened in hot alcohol, and then covered with Peruvian balsam. It was provided with five sutures, placed in it at equal distances. The operator then pulled the divided ends of the intestine over it and brought them into contact, and then with two needles he made three points of suture, introduced at a little distance from the edges of the cut bowel. The first of these was inserted on the upper, the second on the under side of the gut, while the third one was placed in the anterior part of the intestine. They were then tied and the gut was dropped back into the abdomen, its walls (of the intestine) supported by the convexity of this piece of calve's trachea, and was abandoned to nature. On the twentieth day a ring of the trachea was found in the feces, and on the fortieth the patient was completely cured." (Literal translation.)

I would here remark that this method of intestinal anastomosis was an old one, even in Bertrandi's day. Pierre d'Argellata speaks of it as follows: "Alii, ut quatuor Magistri ponunt tracheam arteriam alicujus animalis, diende fuunt vulnus, et natura posteà illos expellit canales." I cannot find the names of the four surgeons mentioned in the above quotation, but it is certain that they practiced in Paris at the end of the thirteenth century.

In Chapter XXVI of his work, Fabricius d'Aquapedente also states that some surgeons employ cylinders of elder wood or the trachea of certain animals, but he condemns the use of these materials in intestinal anastomosis.

In the work already mentioned, Bertrandi reports a case of hernia of the appendix, the organ extending into the scrotum, while a portion of the cecum occluded the external inguinal ring.

The Cesarean section, having been of late advocated and performed in cases of placenta previa, it is with much interest that I find in Chapter V of Bertrandi's work the following indications for the performance of this operation, which I will translate: "When the fetus is contained in the womb, and it absolutely cannot make its exit on account of some of the obstacles of which we have already spoken, one should in this case perform the Cesarean operation before the mother and the fetus perish by the violence of the pains, *from hemorrhage*, convulsions, etc."

The first case of operation for extra-uterine pregnancy that I am aware of is to be found reported in Bertrandi's work, and due to a surgeon by the name of Govei: "A young lady of twenty-one years had a tumor in the groin, which was first mistaken for an epiplocele, but arterial pulsations could be made out in it. At the end of two months and a half the tumor had attained the size of a one-pound loaf of bread. Govei opened the tumor on the pressing demand of the patient. He first discovered a kind of membraneous sac, from which a certain amount of quite limpid fluid came away. He dilated the sac and found a male fetus, one-half foot in length and proportionately large. It was living, and was baptized. After having ligated the umbilical cord, the placenta was found attached behind the ring of the muscles of the lower abdomen and to the neighboring parts, but it was separated from these with ease."

Clinical Department.

A CASE OF CESARIAN SECTION.

BY HERBERT J. KEENAN, M. D., BOSTON.

In view of the fact that a number of successful Cesarian sections have been recently done for minor pelves, previa, etc., I deem it my duty, in the interest of statistics on this instructive and useful operation, to report a case done by me some time since.

Mrs. W., thirty-eight years, multipara, was delivered of five dead children. The fifth was the larger one of twins, which preceded the case noted here. Ether, forceps and long lying-in period concluded the above cases, after a tiresome labor of two to four days.

The case was seen shortly after midnight, March 10, 1899, and the following conditions found: Membranes ruptured, os two-thirds dilated, a foot and leg presenting. The anteroposterior diameter was much shortened, owing to a marked projection of the sacral promontory. Pains good, patient's general condition excellent. Considering the previous history, short anteroposterior diameter, and parents' desire to get a living child, a consultation was held with three physicians besides myself to determine the best method of procedure. Three inclined to a Cesarian, one to symphisiotomy. All agreed that it would be impossible to get a live child by dragging it through the shortened diameter. The nature and possible result of a section was explained to the parents, and they consented.

The surroundings were those of the poorer sections of South Boston. An oil lamp on the wall supplied light. The instruments used were those of the ordinary pocket case. The patient was etherized and field of operation made aseptic. An incision was made in the median line; the uterus coming into view, it was next incised in the median line, the membranes torn, the child delivered, the cord tied, and placenta extracted in order. Very little bleeding, only one snap being used. The uterus was then closed with interrupted silk sutures, and replaced; omentum drawn down and abdominal wound closed with silkworm gut sutures. Sterile dressings were applied, and the patient put to bed in good condition. She was given injections of strychnia, brandy and ergotine.

The time of operation was 4.15 A. M. The child and placenta were delivered in a few minutes, less than five; the abdominal wound closed, and the patient in bed in fifty minutes. The child was a girl, eight and a quarter pounds.

The post-operative period was unimportant till the sixth day, when, after a fit of coughing, the wound was opened its entire length, with the escape of intestines. Under chloroform the bowel was replaced, edges of the wound brought together and again closed. Mother and child did well subsequently. Valuable assistance was rendered at the time by Drs. J. B. Lyons, R. N. Daly and J. A. Cronin.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., AND JOHN W. BARTOL, M.D., BOSTON.

(Concluded from No. 10, p. 237.)

DISEASE OF THE MYOCARDIUM IN CONGENITAL SYPHILIS.[7]

IT is not yet sufficiently well known that congenital syphilis may produce grave vascular disease in children. G. Berghinz records in the *Gazetta degli Ospedale*, of June 24th, 2 interesting cases which throw light on the arterial and vascular lesions which may be produced in infants, and which may result in death in the midst of apparent health. One case is that of an infant eighteen months old, who, while seemingly well, suddenly developed a paroxysmal dyspnea with cough and intense cyanosis, symptoms which possibly pointed to edema of the lungs. There were no symptoms, however, of fever, renal disease, epilepsy, laryngeal spasm, or status thymicus, and the case ended fatally. The post-mortem examination disclosed syphilitic vascular lesions of a characteristic sort (arteriosclerosis) such as occur in the subjects of congenital syphilis, and affecting especially the myocardium. No syphilitic history was ascertained in the parents, but in the second case, in which the same group of symptoms occurred in a child and ended fatally, inquiry revealed an undoubted syphilitic history in the father. Berghinz refers also to an article in the *Centralblatt für Kinderheilkunde* for June, containing a summary of the post-mortem appearances in 22 cases of hereditary syphilis, in which it appeared that syphilis affected the ganglia of the heart and gave rise to a proliferation of the perivascular connective tissue of the blood vessels in the cardiac walls, which eventually resulted in arteriosclerosis and death. It is clear, therefore, that arterial disease due to congenital syphilis, and affecting the coronary arteries and nutrient vessels of the heart, may result in sudden and rapid death, when symptoms of dyspnea and cyanosis supervene in a child otherwise apparently healthy.

[7] The Lancet, August 25, 1900.

It is also interesting to note that many forms of cerebral palsy (hemiplegia and monoplegia) may likewise be the outcome of cerebral arteriosclerosis when the latter occurs in the fetus in utero or in infancy, the results appearing in various forms of paralytic idiocy and imbecility.

PATHOLOGY AND TREATMENT OF ANGINA PECTORIS.

Schott,[8] with a prelude on the pathology in which he supports the well-known "Parry-Stokes" theory, that the stenocardiac crisis "is a sort of syncope, with a preceding strong oppression or pain in or near the heart, the consequence of an organic lesion, the effects of which are brought into evidence by a lowering of the heart power and an accumulation of blood in the cardiac cavities," leads up to a recommendation of the Nauheim treatment for properly selected cases; that is, cases in which arteriosclerosis has not made such progress that the danger of embolism or apoplexy is to be apprehended. Such treatment is more lasting than the usual medicinal one of reducing blood pressure and consequently the work of the heart, because the heart's muscle is strengthened and the cardiac nerves acted upon. The result of his experience has been that "the treatment by baths and exercises has proved to be of signal success, even in cases in which the nitrites, and principally nitro-glycerine, had more or less failed.

DISTURBANCES IN THE BRACHIAL PLEXUS IN ANGINA PECTORIS.

Loewenfeld[9] has studied the relation of the "brachial symptoms" in anginal attacks, and divides disturbances of the plexus into three groups: (1) of sensation; (2) of motility; (3) vasomotor disturbances. (1) The pain (in rare instances extending also to right arm) is distributed chiefly in the regions supplied by the external cutaneous, the greater internal cutaneous, and the ulnar nerves. It varies in degree from slight prickings to the most intense forms; paresthesia is often an accompaniment. He found that in the severe cases pressure on the plexus above the clavicle evoked pain in the region of the heart, as well as in the arm. The same was true of active or passive movements of the arm. (2) The motor disturbances occurred only in severe cases, and consisted in weakness of the entire arm, including shoulder, or in some cases was confined more especially to the forearm. (3) Of vasomotor disturbances in "organic" angina pectoris, he has observed simply coldness and pallor of the left hand in connection with pain.

Brachial symptoms show in different cases quite varying relationship to the cardiac, thus: (1) There may be attacks of stenocardia, even severe ones, in which brachial disturbances are entirely absent. (2) They do, however, occur in most cases, and very often are severe in proportion to the severity of the cardiac symptoms; but not rarely there is a striking disproportion, and either group of symptoms takes the foreground as the

[8] The Lancet, September 8, 1900.
[9] Muench. Med. Woch., August 1, 1900.

case may be. (3) The brachial symptoms may be the first sign of the disease. (4) Pain and weakness of the arm may endure much longer than the heart pang; and in periods *between attacks* light brachial neuralgia may exist by itself, or in connection with slight heart pains.

The theory for the origin of these various manifestations on the part of the brachial nerves is a more or less complicated one. In the ordinary type of case the old theory that the brachial symptoms are due to stimulation passing from the cardiac plexus by the two lower cervical ganglia to the spinal cord, is considered sufficient. Based on Head's localization of the origin of the sensory nerves of the heart in that region of the cord covered by the last two cervical segments and the first eight dorsal segments, corresponding thus to a part of the origin of the brachial plexus, this transfer of neuralgic pains seems not difficult to understand; but for those cases in which the paroxysm is ushered in by the arm pain, or those in which the latter takes the first place in acuteness, it must be further assumed that there exists a hyper-irritability of the centre of origin of the brachial plexus; causes for such hyper-irritability the author thinks he has shown in a reported case of angina pectoris with pre-existing brachial neuralgia, and he also instances the occasional association of valvular disease of the heart with brachial neuralgia as a further proof of the possibility of intimate relationship between heart and plexus. Finally, in such cases as combine the independent existence of both brachial neuralgia and angina pectoris, he concludes that they must react unfavorably on one another.

INTERMITTENT PULSE.

As a result of his experiments, Cushny[10] makes an important differentiation in the varieties of intermittent pulse, and intimates that it is possible and valuable to determine the variety in individual cases. He classifies them as follows: (1) True ventricular intermissions, in which the pause is exactly equal to two pulse intervals, and during which there is no cardiac sound. (2) True auricular intermissions, in which the pause is shorter than two pulse intervals and during which there is no cardiac sound; seen often in healthy persons, and then probably due to excessive inhibition; other cases may be due to auricular disease. (3) False ventricular intermissions, in which the pause is equal to two pulse intervals, but is often interrupted by a slight elevation. In every case a first heart sound can be heard during the intermission. This form appears to be caused by excessive irritability of the ventricle leading to a premature systole. (4) False auricular intermissions, in which the pause is shorter than two pulse intervals. There is often a slight elevation of the pulse during the intermission, and the stethoscope reveals a systolic sound very soon after the last regular pulse elevation. (5) Another variety described by Wenckebach, and not yet studied by Cushny.

[10] British Medical Journal, September 29, 1900.

If the intermissions be of the true variety, some stimulant like caffeine or digitalis would appear to be indicated, while if the intermission is caused by excessive irritability, a drug like aconite acting on inhibitory mechanism might be tried.

SUBCUTANEOUS SALINE INJECTIONS IN PNEUMONIA.

Penrose's[11] statistics as to the favorable effect of the subcutaneous injection of normal salt solution in pneumonia were so favorable that the method was tried by Drs. Ewart and Beaumont in 6 cases under their care. The cases selected were those occurring in unhealthy and debilitated persons, where the disease seemed likely to be severe. The first case was of a severe type in a debilitated female, aged thirty-seven years. One pint of the solution was injected into the subcutaneous tissue of the right subclavian region. Next day the same amount was injected into a similar situation on the left side at 11 A.M., and again at 6 P.M. Altogether there were four such injections alternately on the left and right sides. The patient recovered. The other 5 cases, 1 of which was ordinary pneumonia, 2 double, 1 complicated with empyema, and 1 case of pneumo-typhoid fever, all died. Grey hepatization had appeared in some. The results were disappointing. All but 1 were fatal, but it might be said that the proceeding caused no unfavorable symptoms, and in one or two seemed to have delayed the fatal issue. It did no further good, neither did it promote death. It was not resented by the patients, and the reporters thought it might be given a further trial.

INTRAPLEURAL INJECTIONS OF NITROGEN GAS IN TUBERCULOSIS.

H. P. Loomis[12] speaks of the occasional arrest of a tubercular process in a lung, compressed either by effusion or by a pneumothorax, which from the enforced rest seems to favor a cicatrization of the tuberculous foci. The same effect can be produced artificially by the injection of nitrogen gas, and in the present article he gives his personal experiences with the method. He says that the more he has used it the more he has been tempted to apply it in advanced and hopeless cases, since it relieves the patient and stops many of the distressing symptoms. It cannot, however, always be employed because of the inability to force the gas into the pleural cavity in many cases on account of adhesions, but its impractibility can only be demonstrated by an actual test.

An analysis of his cases shows that the total number in which it was tried was 18, 8 of which were instances of pulmonary hemorrhage which was stopped at once. It was given for its effect on the lungs in 10 cases, in the majority of whom the physical signs remained the same, but pleurisy was controlled at once. Sixteen cases gained in weight on an average of 7½ pounds. None lost. Twenty-nine injections in all were given, the average amount of gas used being 107 cubic centime-

[11] The Lancet, August 18, 1900.
[12] New York Med. Rec., September 29, 1900.

tres. In 13 cases cough improved, 3 slightly and temporarily. The expectoration diminished in 11 cases, and in 4 the fever was lessened. In 8 the injections were tried and failed, owing to the inability to introduce the gas.

He sums up the method as follows:

(1) It is a treatment that has a future; I would advise its more extended use. Only in this way can we ascertain the kinds of cases to which it is best applied.

(2) I have never seen any bad results or even unpleasant effects following the injections.

(3) I have seen no cases result in absolute cure of the disease.

(4) I have certainly seen the apparent arrest of the disease in 2 cases, and the disappearance of such constitutional symptoms as expectoration, fever and cough in a number more. Sufficient time has not yet elapsed to say whether in even the most favorable cases the activity of the disease may not return.

(5) The local improvement is not so apparent as the constitutional.

(6) A marked gain in weight is found in every case injected. This is so universal as to be astonishing, especially as the cases have had no other treatment and many of them have been in hospital wards and under antihygienic surroundings; yet the gain in weight has followed almost immediately after injections, and when a patient had been losing weight before the injections he suddenly began to gain. It is very difficult to explain this effect, except by the marked effect upon the pulmonary lesion.

(7) That this method of treatment will stop pulmonary hemorrhages I am thoroughly convinced. I have never known it to fail, even in one of the most desperate cases upon which it was tried. If these nitrogen-gas injections have no other place in the treatment of pulmonary tuberculosis, it seems to me that their ability to arrest pulmonary hemorrhage gives them a place which no other method we have at the present time can occupy.

THE BRONCHIAL MUSCLES AND ASTHMA.

Aufrecht[13] says that he is in full accord with the majority of authors who accept the theory that asthma is the result of a reflex spasm of the bronchial muscles, but apart from this nervous influence catarrh of the bronchi must also be recognized as a factor in the production of the disease. For the latter no complete explanation has ever been possible. Encouraged by his discovery that longitudinal as well as circular muscle fibers exist in the finer bronchial tubes of rabbits, he has succeeded in showing that a powerful layer of circular and a much weaker layer of longitudinal fibres exist in man. This anatomical fact explains the occurrence of asthma in inflammatory conditions of the bronchial mucous membrane. Here the muscular fibres become edematous, but the function of the circular owing to their greater strength, is less interfered with than the longitudinal, so that a narrowing of the bronchi results, the former being no longer opposed by the latter. In his experience, asthmatic attacks, which result from catarrhal conditions, never become so severe and threatening as those of reflex origin, which is readily explained by the fact that they are not due to spasm, but to an increased contraction of the circular fibre from the absence of their longitudinal antagonists. Owing to the retained secretions and the damming up of the asthma crystals and Curschmann's spirals, bronchial catarrh follows the reflex spasm and may prolong the asthmatic attack for days.

[13] Deutsch. arch. f. klin. Med., 1900, Bd. 67.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M. D., SECRETARY.

REGULAR meeting, Monday, January 21, 1901, DR. E. H. BRADFORD in the chair.

DR. BRADFORD: The committee in charge has considered it advisable now that we have entered upon a new era to vary the usual programme of our medical society and look a little to the past. We are beginning a new century, and before laying out our course it seemed wise to examine our chart to take an observation. The committee has, therefore, invited a gentleman to address you, who has not only interested himself very actively in the work of this society the last few years, but one who will also speak to you tonight not in the spirit of a *laudator temporis acti*, but as a historical student telling us the record of the Society for Medical Improvement. I take pleasure in presenting to you Dr. James G. Mumford.

DR. MUMFORD'S subject was

THE STORY OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.[1]

DR. BRADFORD: As Dr. Mumford has said, the society at one period was in a condition of lethargy, and it was necessary for its good work that it should be revived. At that time the society needed a tonic, and found it in the influence of one who has given new life to this organization. When we read of the names of the past leaders in Boston medicine it sometimes seems to us that the type has changed, but we have in our midst one who, if he had lived in the early part of the 19th century, would have been a leader in the broad field of general medicine. Circumstances channeled his career differently, and you will now be addressed by one who is universally respected as the foremost specialist of America, Dr. James C. White.

DR. WHITE: We have had the pleasure of listening to a full and admirable narration of the past of this society, and yet I may be permitted, Mr. President, in compliance with your complimen-

[1] See page 247 of the Journal.

tary request, to express some opinion with regard to its future, to cast still a brief glance backwards and recall a few personal impressions of its character during my forty years connection with it. Reminiscence, sir, for one of my age is a surer field than prophecy.

When I first joined it in 1859 it might well have been called a small, select and delightful pathological club. Membership was regarded as a high honor, but it was all too exclusive. Three negative votes excluded a candidate, and as personal feelings sometimes found expression through the ballot box, several of the most able physicians of that day, who would have been an honor and strength to it, were denied admission. The meetings were held in the valuable museum of the society, and the seats were arranged around three sides of a large table, which was generally covered by recent pathological specimens. There Dr. J. B. S. Jackson made his inimitable and instructive demonstrations each evening, and although every member present was called upon to make some oral report of cases, they were chiefly those connected with the subsequent exhibition of specimens. Papers on general medical questions were exceptional. Its proceedings at that time were in marked contrast to those of the Medical Observation Society, where clinical medicine was cultivated by younger physicians mostly, in a manner most critical and instructive.

It was truthfully said that the medical profession of Boston of those days lacked ambition. They were content to keep their knowledge to themselves, and to use it for their patients alone, or give expression to it through the restricted circles of these two small societies. They rarely published a book, or lecture, or paper, and thus, with all the varied learning which some of them possessed in eminent degree, they held an inferior position to the physicians of other large cities of the country in the estimation of the medical world. I was for several years, 1863–1866, a co-editor of the *Boston Medical and Surgical Journal*, and remember the great difficulty it had in obtaining original articles from members of the profession here. It was this spirit of reticence or indifference to medical progress through contributions of personal experience which led, I think, to the gradual decline of this society of that epoch. Its brilliant renascence in 1880 was due to the determined efforts of some of its members to rouse the profession from this apathy and force it to give public expression to its long-retained stores of knowledge.

How different it all is now you all know, but how great the change from then only the oldest members can appreciate. Now the books published by our members are numerous and world known. Papers in every department and of the highest merit are most abundant. The papers presented to this society, and the discussions they call forth, are habitually excellent, and deserve the recognition and support of a large audience. This they do not always receive. The average attendance at the meetings, I am told, is about thirty, whilst the membership is two hundred and fifty. How is this general lack of interest in the society to be explained, and how may it be corrected? These are questions which vitally affect its continued existence and future success. In my opinion there can be but one answer to the former. We have far too many medical associations. Permit me to enumerate:

Our Suffolk District Society, in addition to its general sessions, was subdivided a few years ago into eight sections, some of which are in active operation. Then there are the various special societies, namely: The Obstetrical, Gynecological, Ophthalmological, Medical Psychological, Dermatological, the Medical Sciences, the Warren Club, the Thorndike Club, the Clinical Club of Jamaica Plain, of Roxbury, of Dorchester, of the City Hospital, of the Massachusetts General Hospital, also those of towns immediately adjoining Boston, and possibly others I do not know, all in more or less active operation. Besides there are the State and many national societies, general and special, and several international congresses.

Now it is evidently impossible, with all these varied and many interests making constant demands upon thoughts and time, that men can have much of either for any individual society. Some of them must be slighted, and naturally the best thoughts and most time will be at the disposal of that or those in which the individual takes the greatest interest. It is hardly to be expected that any of these associations will obliterate or concentrate themselves for the good of this older and more general society, yet something might be accomplished with advantage in this direction. I have no doubt that an appeal to its members, both old and young, to give it a more earnest and constant support by attendance and voluntary contributions would do much to make its future more assured. I would suggest that but one set paper be presented at any meeting, and that more time be allowed for general discussion and criticism; so that if any member desires to speak upon the subject of the evening he shall not perhaps feel that he is encroaching upon the time allotted for the succeeding paper. Possibly the old custom of assigning an hour for oral presentation of cases or other subjects might be revived with benefit. Finally, I should regret to feel that one meeting a month might come to be regarded as a last resource.

By some such measures as I have thus hastily ventured to suggest, I should hope that the large body of able and energetic young physicians, of which the society may well feel proud, will make of it a vigorous, flourishing and attractive association, devoted to the best interests of clinical and public medicine, which shall long continue to be an honor to the profession of greater Boston.

Dr. Bradford: In listening to Dr. Mumford's account, the thought suggests itself that the great men of the medical past were of different fashion from that of today. The great practitioner of those days was a man of force, who was broad in his range, earnest, energetic, in sympathy with

the spirit of science, a clear reasoner, a keen observer, sound in judgment, and yet often flavored with the grace of the humanities. To find this valued combination of qualities in life and active in vigor we turn to our revered colleague, Dr. Morrill Wyman.

DR. WYMAN: I have very little to say upon the subject suggested. I will say a word or two in regard to a very early matter, and that is the diagnosis of croup. We owe the first clear diagnosis of croup to a governor of Massachusetts, Gov. Dr. John Brooks. In the Revolution he was colonel of a Massachusetts regiment, and led it in the Battle of Saratoga and the capture of General Burgoyne. The war ended, he came home and resumed the practice of medicine in Medford, where my instructor, Dr. William J. Walker, of Charlestown, became his pupil. Dr. Brooks solved one of the first questions of diagnosis when he demonstrated conclusively the presence of a false membrane in the throat in croup. He was able from this to distinguish clearly true membraneous croup from false croup, so called, a disease which in some respects much resembled the other form and the differential diagnosis of which had tested the skill of most practitioners in early medical life; a peculiar "hoarse cold," as it might be called, which is, probably, more closely connected with the nervous system than the mucous, attacking suddenly children in apparently good health after their first sleep at night, producing a more noisy cough, more difficulty in breathing and more alarm, for a short time, than true croup, and yet very seldom proving fatal. Dr. Brooks taught that true croup came on slowly, after two or three days of sickness; difficult breathing was developed suddenly, with a hoarse, peculiar and alarming cough. It was in this form that Dr. Brooks discovered a false membrane in the pharynx which repeated experience proved to him was diagnostic of a very fatal form of croup quite different from the other form with which it had, hitherto, been confounded. This most valuable history Dr. Walker transmitted to his pupils and confirmed its truth by examinations post mortem whenever opportunity offered; in this he was very careful that both the fauces and trachea should be removed and studied. In 1842 Dr. John Ware, in his excellent essay on "The History and Diagnosis of Croup," says, "This circumstance (the false membrane) in the history of croup has been for many years impressed upon my mind by Dr. Walker."

Correct diagnosis brought with it improved treatment — warm applications to the neck and mild narcotics like Dover's Powder, which are uniformly successful in false croup, displacing a needless and sometimes an injurious activity often resorted to under the impression that a fatal disease is impending. I had myself an unexpected result of the application of my knowledge of the distinctive diagnosis I had received from my instructor. I had been, a short time only, a physician in Cambridge, when I was suddenly called to a child with croup coming on after its first sleep. As I had been taught, candle and spoon in hand, I examined the throat carefully, saw there was no false membrane, and complacently told the friends that their child would be better in the morning, and they need not be much alarmed, and gave my directions and prescribed Dover's Powder, saying, as I took my leave, "I will see the child early in the morning." When I called in the morning the door was opened about six inches wide, and I was told that the child was alive; that their doctor had been there all night and had given his *own* medicines steadily. In much alarm I hastened to Dr. Walker and told him I had seen a case where there was no false membrane, and yet the child was dying from croup. He said, "Doctor, the baby will, probably, not die; but I think you were rather unfortunate in telling them so." The patient got well. I was comforted after a time by the opinion of my friends, that of the children I was called to with croup, most were soon relieved — perhaps because they were not first made very sick.

I wish to say that this most important observation in the differential diagnosis of these two diseases we owe to Dr. John Brooks, a president of the Massachusetts Medical Society.

DR. BRADFORD: We have among our ex-presidents one to whom you will all be ready to lend your ears, for he can both tune and charm them — Dr. Clarence J. Blake.

DR. BLAKE: It was a long, low room, brilliantly lighted from near its centre, the confines of the room hidden somewhat in obscurity, not so much so, however, but that there could be seen books upon shelves and the glint of light upon glass cases; a little toward one side of the room a table, covered with a worn cloth of dubious appearance and character unknown, until on closer examination it was found to be broadcloth, apparently, from which the nap had in the course of time been removed, the removal of the nap sometimes carrying portions of the original cloth with it; on this table two or three large metal trays, one of them holding a sponge, another scissors, forceps, knife, a basin, with ewer and towels, a pitcher, presumably filled with water, and two or three glass tumblers; around the table a few horse-hair covered chairs, away from the table and about the walls, wooden seats, chairs and two or three benches. Into such a room there came, with a sense of awe, as if approaching a holy-of-holies, two medical students to whom there had been accorded the high honor of being asked to be present at a meeting of the Boston Society for Medical Improvement. There were but two persons present in the room. One, seated in a chair near the table, was poring over something held between his hands. A seemingly tall, rather gaunt figure, clad in a coat with long coattails; one of the coattails hung down over the edge of the chair and bulged considerably. The bulge of the outline of the coattail did not indicate a round, but a square body. Presently, hearing footsteps on the floor, this man turned his head, showing a rather long, lean face, dark, penetrating

eyes under bushy eyebrows, a somewhat prominent nose, well-defined mouth, the kind of mouth that keeps itself curled up at the corners, reminiscent of the Cupid's bow of childhood. The whole expression of the face turned toward the young man was a most kindly one, its look was accompanied by a welcoming wave of the hand and the words, "Come in and sit down." The other man, standing by the table, leaning over and looking at the object which the other man held, was of shorter stature, and his smiling face, fresh and clear in color, seconded without speaking the welcome to the two medical students, who thus encouraged found their way between the benches and the rows of chairs and took two seats at the back of the room against the glistening portion of the wall which they found to be a series of shelves fronted with glass, and behind this glass numbers of bottles containing preparations, some dried specimens and specimens of bone. Shortly other members of the society filed in and took their places. Simple, friendly greetings, the greetings of men who met every day in their affairs of life, and who now came together with a sense that the day's labor was possibly over, and that here there was to be refreshment for the mind and rest in companionship.

The presiding officer, after calling the meeting to order and going through the business of the day, made the announcement of the papers to be read and communications to be made, and called for them. The first paper was the report of a case; its character I do not remember. The second was the presentation of a second case; then followed the reading of a short paper with its discussion, also short; the third communication included the presentation of a specimen. During the reading of the papers an explanation was found for the presence of the pile of palm-leaf fans which formed a part of the table furniture — palm-leaf fans in the middle of the winter. The tall man whom we had first seen and who had so kindly welcomed us presently reached forward and seizing one of the palm-leaf fans held it over his forehead to shade his eyes from the light which shone downward upon the table. One after another of the members of the society also seized palm-leaf fans to protect their eyes. During the reading of the papers the tall gentleman with the palm-leaf fan was still, but the moment the specimen was brought forward and put upon the table he became instantly eagerly alert. The palm-leaf fan was not abandoned, but simply cocked farther upon the top of his head as he stretched himself forward to catch a clear view of that which was being emptied from a cloth into the platter before him. Then came the reading of the case, a description of the specimen and a discussion of the report, and a demonstration of the specimen, which was passed from hand to hand, followed always sharply and eagerly, as it circulated through the assemblage, by the eyes of the tall man. The specimen came back to the table and the concluding remarks were made by the man who had presented it. He had no more than finished when a hand was put upon his arm: "You don't want that specimen? I thank you." And then we saw the reason for the bulge in the coat-tail, for out there came a square, wide-mouthed bottle; a pair of forceps was drawn from an inside pocket with the speed with which one might draw a stilletto, the specimen was grasped and popped quickly into the bottle and the cover clapped on. With another "Thank you" the tall gentleman retired to a remote part of the room with his prize and the discussion of subjects and the reading of papers went on. The memory picture of that first view of the Improvement Society with the men who made the strength of the profession of that day has remained as an impression of what is best in the medical profession, — skill, training of purpose, intelligence, and immense earnestness. That impression has remained and strengthened through all the years which have followed the acquisition of that very high honor, so esteemed then among the younger medical men, so justly esteemed today, membership in the Boston Society for Medical Improvement.

As the reader who reviewed the society's history has said, the work of this society stands single and alone in many ways, and as one of its presidents has said, other societies have grown up about it and are taking their places in special lines of work. However much other lines of medical activity may be fostered, in the medical community life this society holds a distinctive place. It is preëminently the society through which all that broadly concerns the medical profession as a part of the community whole may most readily be brought before both the profession and the public. It has been, it should continue to be, a rallying point for the consideration of what may be called the sociological obligations of the medical profession, and looking into the future of this society, its past indicates its possibilities in this line of service; it should represent the medical profession as a whole and it should give the medical profession the opportunity to represent itself as a whole in matters of community welfare. Moreover we are coming, in the multiplication of our special societies, to need more and more some one medical organization which shall be a centre for them all. Apparently, with the heritage of its past, to take the initiatory step in the formation of that organization is not only the duty but the great opportunity and privilege of this.

Dr. Bradford: Generations of civilized men have been born, lived and died, and it remained for a member of this society to show that every human being carried inside his abdominal cavity a dynamite cartridge ready to explode. He not only demonstrated this, but indicated the cure. The surgical world owes Dr. Fitz a debt of gratitude for unfolding to it a resource more inexhaustible than the mines of Golconda, but humanity owes him a greater debt, for he has wrested an implement from death.

Dr. R. H. Fitz: Those of us who recall to mind the Medical Improvement Society of thirty years ago realize that a marked and undesirable

change has taken place in its spirit. The society was established for the improvement of its members at a time when medical progress was slow and medical centres were widely separated, if not in distance, certainly in the interchange of ideas. The relatively few members who had enjoyed superior advantages in the acquisition of knowledge and experience were called upon to advise and assist the less fortunate. The meetings were largely attended by the leaders of the profession. Communications of interest and of value frequently were presented and decided importance was attached to the early and complete publication of the proceedings. So much care was taken in the selection of members that those young in the profession generally regarded it as an honor to be enrolled and thus to be brought into more intimate personal relation with those whose example was a constant inspiration. Above all it had an eminent man untiring in his devotion to its interests, the late J. B. S. Jackson, first Professor of Pathological Anatomy in Harvard University.

In the meantime a revolution has taken place in medical progress and a retrocession in the importance of the society. The latter has not occurred without reason and the causes are not concealed. Medical specialization has been the chief means of disturbing the activity and influence of the society, although it should have proved the main source of strength.

As specialty after specialty became represented in the membership a growing number of communications of interest to the few only were presented. Attendance at regular meetings thus was limited to an increasing minority of members subject to constant change in its composition. As the specialists became more numerous special societies were formed and the oculist and aurist, the dermatoligist and neurologist, the gynecologist and obstetrician gradually withdrew in greater or less numbers from active participation in our meetings. The establishment of National Associations of physicians of constantly narrowing interests has resulted frequently in the reservation for these of the best productions of our members even when they were admirably adapted for home use.

The officers of these associations, far in advance of the date of the meeting, have appealed, often with conspicuous success, for contributions from our members and the interest of the meetings of our society has suffered in consequence.

Now we are led to the thought that the Boston Society for Medical Improvement may have outgrown its usefulness and should retire in a dignified manner before evidences of decay become painfully apparent.

We must remember, however, that all physicians are not specialists, that the leaders in medical specialties are those whose training in medicine has been the broadest, and that the ideal association of physicians in communities of sufficient size is that which includes the representative men of each and all departments of medicine. Any association which can bring these together and hold them together always is needed. If this cannot be the function of our society we may rest assured that a society will arise to fill this need. We know that such organizations exist elsewhere and are time-honored. Dr. H. C. Wood, in his remarks prepared for the recent dedication of the new building of the Boston Medical Library, has called attention to the leading functions of the venerable College of Physicians of Philadelphia. He stated that it increased personal friendship and amity, stimulated zeal in study and the acquirement of knowledge, and gave weighty opinions in medical matters of public concern.

Dr. J. R. Chadwick, the librarian of the Boston Medical Library, at the occasion mentioned, suggested that it is for the Medical Library to assume these functions of a medical society and to play the part of the New York Academy of Medicine and of the Philadelphia College of Physicians. He did not, however, give due credit to our society as a source of authority. It is to be remembered that when Boston was threatened with an epidemic of cholera, Mayor O'Brien appointed, on recommendation of Dr. John G. Blake, an advisory committee wholly composed of members of this society — to aid the City Board of Health and to inspire the public with confidence.

It may be that the future of the Medical Improvement Society will bring forth a fusion with the Boston Medical Library since the aspirations of the latter may trench upon the functions of the former. In this event it might be well that a new title should be devised to indicate for each a wider sphere of usefulness than the existing designations suggest.

Were this to result the "Boston Academy of Medicine" might open its library to all but its membership to those only whose association would prove mutually beneficial.

Admitting the necessity of the existence of an organization like our own it is evident that its success must depend upon the general recognition of its functions and a zealous effort to increase its usefulness. As at present its membership must consist of all whose work is earnest and honest and whose example may safely be followed. The wisdom of the elders will be welcome to the juniors whose superior training and enthusiasm will prove a constant source of admiration. To secure such membership subjects rather of general than special interest should be selected for treatment and discussion. Especial effort should be made to obtain the best work of the leading and most active members. Interest in live topics should be stimulated by inviting from elsewhere readers who have distinguished themselves by investigations or experience in matters of novelty or importance. Meetings should be social as well as medical and the largest possible use should be made of the various means of illustration. To carry out these measures the Standing Committee, enlarged if necessary, should hold frequent conferences and should be changed often enough to receive at least one new member in each year.

In conclusion, I would say that the function of

our society now, as heretofore, is to improve the knowledge, power and influence of its members; that its opportunities never have been greater and that it is the duty of us all to avail ourselves of them.

Dr. Bradford: The task of making bricks without straw we know from biblical information is a difficult one. It promoted a rebellion centuries ago, but one gentleman — meeker than Moses, shall we say?— has carried out this task without inciting a revolution. We are not all of us at all times thoroughly satisfied with the brick, but Dr. Shattuck also can complain of the scarcity of the straw. What he has done for our society, what he has done for medical writers in our community, no one knows but himself. The pains he has taken to satisfy the unsatisfied cannot be told. Whatever may be said of our *Boston Medical and Surgical Journal*, it is certainly most independent, most free from servitude to improper influences, and we all know that in the editorial department the *Boston Medical and Surgical Journal* is unsurpassed.

Dr. George B. Shattuck: As I have been sitting here this evening I have been gradually coming to an entirely different view with regard to the piety and character of a Methodist bishop, of whom I lately heard a story which ran somewhat thus: During a period of the late exciting election there was to be a rally somewhere in New York, and the managers had selected some very suitable people to address the meeting, and, among others, they had secured a Methodist bishop who was well known for his eloquence and persuasiveness. The list and order of the speakers had been made out, and his was not the first name on the list, but the first name was that of an eminent lawyer. Before the meeting was called to order the bishop arrived, and immediately on arriving he said to the chairman, "Mr. Chairman, I am to speak first." The chairman said, "No sir. I am sorry, but you are not to speak first. The committee have made out the order of the exercises, and Mr. S., a lawyer, is to speak first. You will speak second." The bishop said, "No, sir. I shall not speak second; I shall speak first." The chairman said, "No; I am very sorry, your reverence, but you will speak second." "Well," said the bishop, "I will either speak first or I won't speak at all." "Well," said the chairman, "then, sir, if you feel that way about the matter, you will have to settle it with Mr. S., the lawyer, who is there, and I will be guided by the decision which you may come to." So the bishop went to the lawyer, and they had it out, and the lawyer said he would speak first and the bishop said that he would speak first; and thus it kept on until the hour for calling the meeting to order arrived, and the chairman said, "Now, gentlemen, have you settled this matter? And which of you is to speak first?" And the bishop said, "I am to speak first." And the lawyer said, "No; I am to speak first." Then the chairman said, "If you cannot settle it, I shall go ahead and follow my list." Then the bishop seized his hat and coat and was about to go out of the room whan his sponsor caught him by the coat and pulled him down into a chair, and the lawyer went on with his speech. By the time he had got to the middle of it a bit of paper was passed to the chairman, who opened it and found it came from the bishop's sponsor and read thus: "For God's sake choke him off. The bishop is playing hell here." (Laughter.) Now, Mr. Chairman, when I heard that story I confess my sympathies were not with the bishop. It seemed that his behavior was marked by impropriety (laughter), but as I have sat here this evening I have gradually come to have rather a keen sympathy with the bishop, and felt that he knew what he was about (laughter).

You were good enough, sir, a little while ago to bid me to come to this meeting — and I always do what you tell me — and you suggested that you desired that I should make a few remarks with regard to the future of this excellent organization. About the day I received this missive from you I happened to dine with Dr. Blake, and after dinner Dr. Blake said, "Are you going to the commemorative meeting of the Medical Improvement Society?" And I said, "Yes. I have got to go. Are you going?" He said, "Yes. I have got to go." "Why have you got to go?" "Well," he said, "I have got to go because I have to speak in regard to the future of the society." "Well," I said, "thunder, but that is just what I am told to do myself. (Laughter.) Now, what I want to know is how big the future of that society is going to be if so many people will have to speak in regard to it." Well, we wrangled over this a little bit, but were not quite as stiff with each other as the bishop and the lawyer, and finally recognizing that I was neither a prophet nor son of a prophet, I said, "All right, you take the future and I will take the *preterit aorist*." So we settled it in that way, and the rest of the dinner passed off amicably, and I went home and spent most of my time after that formulating some remarks in regard to the *preterit aorist* of this society, which I felt much competence to do because although not the son of a prophet I happen to be the son of a former secretary of the society, and I was going on pretty well in that direction when I received a summons from you, Mr. President, by telephone, and you informed me you heard there was the devil and all to pay in the society, that somebody had told you so, because you had asked two gentlemen to speak about the future of this society. "Well," I said, "I have not heard of any real trouble," informing you how it was settled. You said, "Well, you shan't speak about that. You will have to speak about an entirely different subject. What you will have to speak about is the prudential committee of the society." (Laughter.) "Well," I said, "all right. I am much interested in the welfare of the society and having harmony reign here. I will speak about the prudential committee." So I began to think about the prudential committee, and the more I thought about it the more it seemed to me eminently just and meet and right that somebody should say some-

thing about the prudential committee of this society, because it is an extremely important component part of this society, and my impression is that there was a prudential committee long before there was any such thing as a president, and that is another reason why, it seems to me, I ought to have spoken first. (Laughter.) But the prudential committee gets very little recognition. I was in hopes it would receive more recognition in the historical paper we have listened to this evening. If there were no prudential committee there could be no presidents and no secretaries and nothing else. It is really this prudential committee which fecundates the society and prepares the way for the gestation and parturition which eventuate in a president and a secretary. (Laughter.) And really, Mr. President, I think that the prudential committee can regard all these presidents as their children, and a nice little family it is. I have grown gray in the service of the society, working on this prudential committee (laughter), and this is the first occasion when any opportunity has been given for any sort of recognition of the labors of the committee. (Laughter.) Indeed, we teach the president to walk and when his young feet have a tendency to err from the right path we lead them back, and when the secretary is wabbling and demoralized, does not know what to do, and there is no straw, he calls a meeting of the prudential committee and regards it as a practitioner does his hypodermic syringe (laughter) and there is immediately as it were a thirtieth of a grain of strychnia coursing through the veins of the society, and the whole thing is again vivified and reanimated. In various ways, as you indicated, Mr. President, there is much to tell that nobody knows except myself, and I am not going to tell it all. I have told some of it.

I was interested in Dr. White's prognostications with reference to the possible slow decline of this society and how it might be arrested. I was very glad that, although suggesting other measures of arrest, he did not fall back upon that last resort of an inanimate and degenerate society — food and drink and tobacco. That I should consider the last stage of decadence. That is something which is reserved for less zealous and less scientific organizations than ours. (Laughter.) Of course once in a period of seventy-two years it does very well. Seriously speaking, Mr. President, I do think that there is every reason why this society should continue to be vigorous and to grow and to be active and to be useful. As a general rallying ground, as a sort of medical clearing house for all the other societies, whether they be as numerous as now or more numerous or less so, I think that this society will always find an extremely useful place.

DR. BRADFORD: None of us know whether this century is to be an iconoclastic one or not, whether it is to look upon the work of the nineteenth century as an entertaining diversion simply, or whether it is to respect and draw inspiration from the recent past. We have come here into our new home, and you see we have brought with us our Lares and Penates, our family pictures; perhaps it may be interesting to some of you to call up the traditions that these portraits present, or at least to have a suggestion of what can be learned from them. The first is the portrait of an unknown gentleman, not Ambrose Paré, as was once thought, but a Monsieur François Hérard, a bourgeois of Paris. He evidently belonged not to the barber-surgeon but to the surgeon-barber company — to the long-cloaked and not to the short-cloaked surgeons, a mighty difference in those days. The groups contended for centuries, and the contest perpetuated itself and was immortalized by the great Molière, and from the wrangle and the discussion of those centuries came forth the great School of Medicine of France. M. Hérard does not look like a great man, but he must have been a man of leadership in his day, as the picture is an admirable one, and was copied in an engraving to be found today in the Bibliothèque Nationale of Paris.

We next turn to the prehistoric Boston medical past in an admirable portrait of Dr. Danforth, known as Dr. "Danfurth." It is a most excellent portrait by Stuart — our Boston Van Dyck, may we call him? — and tells us of one of whom little is known. Dr. Holmes has said that he was a man whose language frequently resembled the speech of the English army in Flanders. (Laughter.) He had violent prejudices. He contended with the amiable and noted James Jackson, was much respected by his *clientèle* and stands to us as an epitome of dignity and common sense. He is known to have been one of the first to upset the ridiculous practice of excessive bloodletting. He speaks to us of what is gone, with an air of something we would like to have, namely, dignity.

And here is a living portrait of the great surgeon who will stand in the memories of all who knew him, who sat as pupils under him, or who served under him, as a foremost mind. Probably he could marshal more cerebral intellectual force for or against any problem before him than any man of his time in our community. His achievements were great but it always seemed to us, and I think it seemed to him, that they were never up to his rare ability, that he never was pushed to his utmost endeavor. Nor did they equal those of his greater father, but perhaps it was because the circumstances of his life did not bring them out, for his mind and his force and his intellect were peerless.

In the corner is an excellent portrait of what may be called the Genius of this Society — Dr. James B. S. Jackson, the Cruveillier, the Rokitansky, almost the John Hunter and Bichat of Boston. What he did is found in the Warren Museum. What he was has been lost except in the memory of his contemporaries. If he has missed that universal immortality which was his due it is because the community in which he lived were too ignorant to appreciate the wonderfully high quality of his endeavor.

And on the other side is the great master of enthusiasm who brought to medicine the zeal of a

crusader, the fervor of a covenanter, who believed himself, as every practitioner, to be the vicegerent of the Almighty on earth. Of his manifold efforts and of his earnest teaching there remains a monumental work on Consumption and the great impulse which has placed sanitation in our community foremost in the world. We not only could admire his ability, but he was a man who could be loved for his strong human sympathy.

And above him stands the teacher, the gentleman, the scholar, whose interest in medicine began when he sat at the feet of Louis and brought to Boston the teachings of that great school of French medicine. He was the first, I believe,— Dr. Wyman will correct me if I am in error — but I think he was the first to bring to us clearly the difference between typhus and typhoid. His influence has extended to our generation and will live longer, as long as this society clings to the traditions of the past.

And last is the portrait, the excellent portrait, of the young medical scholar who was spared to us too short a time to bring to us the whole influence of his traits. Whatever he did brought with it the scholarship and finish that is an inspiration to every one who knew him. He was the scholar filled with the finish of perfected study.

These pictures may be thought to present to us the spirit that should rule this society's councils; they are the true "genii loci." The work that the society has done, excellent as it has been, should be only the beginning. This society has a place in the community as a focus, the academy, the centre, the place from which should radiate much that is useful in stimulus and in effort towards the best medical thought. This will be its future if the gentlemen who are now members recognize the opportunity and equal it in their endeavor. (Applause.) Motion by Dr. C. J. Blake.

Dr. Bradford: Before adjourning it is but proper that we should pay our tribute of respect to two of the older members of the society who have asked that they should not be requested to speak. Their labors in the society have been so active and so useful that it is but proper that this wish of theirs should be respected. We all of us owe the greatest tribute to the Nestor of the society, Dr. Abbott, and to Dr. Ingalls, whose surgery goes back to the days before antiseptics, and who at the age of eighty performed at the City Hospital, where he has been a surgeon since its establishment, a difficult operation with his usual clear judgment, steady hand, and courteous and careful consideration of his assistants and of his patient.

Dr. Ingalls: Before I received the printed notice of this meeting, I had a courteous and therefore kindly invitation from your secretary, intimating a reminiscent gathering. Fearing I might be called upon to say something, I was about to decline, but I did not; for I thought that as, in accord with nature, I am approaching the vale, I might offer a valedictory. The second half of the 19th century has recently been pretty well sifted by divers writers and speakers; I should like to take you and my friendly audience back almost to the beginning of it, but not quite, however, for thirteen years of it elapsed before I was born; the dedication of this superb building took place on my last birthday. There was a time, within my knowledge, when it was difficult to find subjects for the study and demonstration of human anatomy, and the expedients resorted to for furnishing the imperative necessity required the wit, labor and secrecy of certain Jerry Crunchers. If I relate one or two anecdotes in this line I think an arrest from Chief Wade need not be apprehended at this late day. Between my sixth and eighth years of life these events took place. My father was professor of anatomy in Brown University, and had transferred his lectures to Boston in the uppermost story of Number 30 Market Street, now Cornhill. *Our* house was Number 4 School Street, and the two large rooms of the highest story were devoted, one a dissecting room, the other for preparations; there were several students, among them Sam. G. Howe, Lowell, who afterwards became surgeon-general of the army, Dr. George Capron and Daniel Ingalls. The last named, upon entering the dissecting room one evening, was informed of a "find"; how to get it down to Number 30 was the problem. (*Man crying "Oysters, buy my oysters,"* bag on back. Subject from neighboring town.)

Now I was very friendly with the students and several times they took me down to Number 30 to hear a lecture; and once the lecturer called me from the seat to hold an arm for demonstration; I was the greatest man in the kingdom!

I skip my school days and pass on to 1832, having been one year in Harvard. In 1836 I received my diploma, having studied chiefly under Dr. Charles Harrison Stedman. I must be allowed to recall the names of the professors of my early years; I have ever held them in the highest veneration. Dr. J. C. W. Alway seemed to me to be filled with care; I honored him from a distance; Dr. James Jackson, so kind and gracious to me as to cause me to feel almost on an equality with him; Dr. John Ware, who helped me with some cases, for although I was at that age when I "knew it all" I was always glad of help; I noted his manner with patients, with what gentle forcibleness he drew forth from the sick one everything he desired to know. I learned much from him. Dr. Jacob Bigelow did me the honor to consult with me twice. He caused me to feel as though I was the principal in the consultation, and there were others, learned, skillful gentlemen.

In 1839 I went out to Louisiana, and one of the plantations which fell under my care was owned by Zachary Taylor, in Mississippi, just above the State line. Soon after Christmas time the General called upon me; now, I had two bull-dogs, Vengeance and Fury. I heard a low, short growl, and immediately I sprang through the door and beheld a nice looking elderly gentleman within the gate, looking down upon Vengeance, who had the skirt of his surtout in his teeth, the stranger saying,

"Hi! hi!" — Of course there was sudden release

Returning in 1847, by advice of friends I settled in Winchester, a family doctor, ready for anything under the sun: but I chiefly ran to midwifery, which is now called obstetrics. I have sometimes thought I was born too early; for just think of how one must manage events at the present time, and how adroitly he used to carry himself in those days or nights. For time favored me, for there are even now many grandmothers who were subjects of my helping hand. It seems to me that, generally speaking, neatness is a special characteristic of the profession, and next in importance to the antiseptic.

I would like to speak of my service in the Boston City Hospital from 1870 to 1885, but I have not words warm enough and earnest enough to express my admiration of the character and skill and the friendly Christian bearing of each to all, and, for the most part, the students, in time, seemed to imbibe their modes and bearings from the staff and to do their best. Some of my most ardent and enduring friendships were formed during this service.

Recent Literature.

The Syphilis of Children in Everyday Practice. By GEORGE CARPENTER, M.D. (Lond.), Physician to the Evelina Hospital for Sick Children (Lond). New York: William Wood & Co. 1901.

This little book of 110 pages, 28 cuts, and a short but sufficient index is "based upon a study of several hundred cases of congenital syphilis, met with in private practice and in work at the Evelina Hospital for Sick Children." After a short chapter introducing the subject of congenital syphilis, the next three-quarters of the book is devoted to a consideration of the manifestations of the disease in the different regions and organs of the body, beginning with the skin. There follows a chapter on the clinical history of the disease illustrated by reports of 18 carefully selected cases, and the book ends with two or three pages devoted to "Prognosis" and half a dozen more on the "Treatment" of the disease.

In speaking of the length of time mercurials should be continued, the writer says that he "treats his cases with mercurials for at least a year, and has seen nothing but good accrue from their continuation for two years."

The book presents in a few pages the essential facts of our knowledge of this disease in a practical way and with the author's personal experience as a basis of the work. The illustrations are, many of them, reproductions of sketches made "on the spot" to illustrate the writer's clinical notes of cases, and the book is so simply and attractively written that any student or physician who consults its pages will be tempted to read on, to his further profit.

THE BOSTON

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TOPOGRAPHY OF THE LATERAL VENTRICLES.

WHATEVER the future of cerebral surgery may prove to be, it is clear that it is desirable that we should have ready and accurate means of determining the relations of various parts of the skull to the surface of the brain, and also to its interior. The relations of the bone to the more important localizing fissures and convolutions have been carefully mapped out, so that, with care and sufficient preliminary measurements, there is small possibility of error. As a matter of fact, a surface growth or hemorrhage is rarely so accurately localized that trephining half an inch one way or the other is a matter of great moment. With the larger skull openings, which may now be made without material added risk to the patient, it is evident that a preliminary error may easily be rectified. There is, however, a very strong possibility that, with increasing accuracy of diagnosis, operations on tumors underlying the cortex may in time be successfully performed. In such cases it will become a matter of growing importance to spare the patient any unnecessary shock, and to this end to cultivate the greatest possible accuracy not only in localizing the position in the brain of the growth, but also to determine with precision the relations of skull and brain. It can hardly be questioned that certain lives might have been spared, and more brilliant operations performed on deep-seated tumors, had we the requisite topographical knowledge.

A further question of cerebral topography which has been curiously neglected is the relations of the lateral ventricles to the surface of the brain and cranium. This has recently been made the subject of an investigation by Edward H. Spitzka of New York, his preliminary paper appearing in the *New York Medical Journal* for February 2d. Tapping the lateral ventricles has

for a period of about twenty years been an accepted if not very frequently performed surgical procedure. It is likely that the operation will be performed more often in the future than in the past, possibly as a ready means of directly reaching the nervous system, as, for example, in the injection of antitetanus serum, or probably more often as a palliative measure in the treatment of extreme degrees of intracranial pressure. In either case, it is extremely essential that the operator should be able quickly and deftly to reach the ventricle through a small cranial opening and with the minimum of risk of injuring various brain structures. An unskilled man may most easily fail entirely to reach the cavity of the ventricle, or he may injure, more or less severely, important structures lying in its immediate neighborhood, like the caudate nucleus or the optic thalamus. Tapping of the ventricle should therefore not be a matter of guess-work, but should be wholly dependent upon an accurate knowledge of the relation of this rather small cavity to the cerebrum and skull. To make this possible is the object of Spitzka's work. Good plates are lacking, with the exception of Fraser's.

In his preliminary work, Spitzka has dissected the heads of two adults. His method of procedure was, in general, as follows: Preliminary arterial injection, skull trephined and lateral ventricles injected with a 10% formaldehyde solution, immersion of entire head in 5% formaldehyde. After one month's hardening the skull was cleansed and drawings and measurements made. Finally the skull was opened and the brain removed, which was carefully measured and drawn. The brain was then cut into sections about a quarter of an inch in thickness. By the aid of tracings and various appliances, the outlines of the ventricles were then projected upon the surface of the cerebrum and skull. The results are figured in a series of excellent diagrams, in which the relations of the ventricles to the brain surface and skull are accurately given. Spitzka points out the fact that a large number of such measurements must be made in persons of varying age and race before a general rule of value may be formulated. There will always be certain sources of error, depending upon individual variations in skull and brain form, as well as upon certain varieties of form and anomalies of the ventricles themselves. Such sources of error may, of course, be minimized by a sufficiently large number of carefully made observations. We hope Spitzka may continue this work, which promises a considerable practical as well as theoretic result. Any investigation which conduces toward the speed and accuracy with which surgical procedures on the brain may be undertaken deserves the warmest encouragement.

IS APPENDICITIS INCREASING?

It is a popular idea, frequently expressed, that certain diseases are increasing in frequency. No doubt the fallacy of such a point of view lies in the fact that as knowledge advances affections once rarely recognized are now easily diagnosticated, with a consequent apparent effect upon statistics. In no condition is this more true than in what we now call appendicitis. The confusion of a few years ago has given place to a remarkable accuracy in the diagnosis and treatment of this disease, and it is therefore quite natural that an appearance of an increasing prevalence should exist. That such is actually the case, however, had not occurred to us before reading certain comments of Dr. Lucas-Championnière given at the last meeting of the French Academy of Medicine, and alluded to in the *Medical Press*. In this surgeon's experience, as shown by an analysis of his own cases, appendicitis is distinctly increasing in frequency. This he believes due to an increase in the sources of intestinal infection, particularly observable in those people, like Americans and English, who eat large amounts of meat. He furthermore thinks that the comparative neglect of more or less frequent free purgation is having a bad effect by permitting the multiplication of organisms of infection in the intestinal tract. If it is true, as has been claimed, that appendicitis occurs more frequently in persons who suffer from habitual constipation, and also in persons given to a meat diet, we may possibly see a means of prophylaxis. Statistics in such a question are of exceedingly questionable value, but whether or not this now so popular disease is actually increasing or not, it appears both reasonable and wise from various points of view to argue that an occasional vigorous cleansing of the intestinal tract is a safe practice to pursue. The meat question is one more difficult to be dogmatic about, but here again no doubt a golden mean is the best policy to adopt. In spite of the fact that appendicitis has been robbed of many of its terrors by the surgeon's skill, it behooves us none the less to be on our guard, particularly when such simple means of prevention may prove efficacious.

MEDICAL NOTES.

University of Pennsylvania Medical Bulletin. — The changes in the *University Medical Magazine*, which were announced in February, appear with the March issue. The title has been changed to read *University of Pennsylvania Medical Bulletin*. The reading matter is printed in double instead of single column, and all advertising matter has been excluded. The

policy and scope of the publication are in no way affected by these changes, since it still continues to be the official organ of the Medical Department of the University of Pennsylvania.

PLAGUE IN SOUTH AFRICA. — Plague continues to spread at Cape Town, South Africa. On March 9th there were 69 patients suffering from the disease in the various hospitals. Europeans are not exempt. At a meeting of the advisory board the government physician is said to have announced that the provisions made by the Town Council for fighting the plague were quite insufficient. Fifteen new cases were reported March 11, and 97 other persons were isolated because of having come in contact with the persons suffering from the affection. The disease is said to be reaching the more prosperous classes.

SMALLPOX IN GLASGOW. — On March 6th, 42 new cases of smallpox were reported, making the total number of patients in hospital 435. This was the worst report up to that date.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 13, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 88, scarlatina 31, measles 64, typhoid fever 7.

BOSTON MORTALITY REPORT. — The number of deaths reported to the Board of Health for the week ending March 9th was 238, as against 280 the corresponding week last year, showing a decrease of 42 deaths, and making the death rate for the week 22.14. The deaths from consumption were 22; pneumonia, 39; whooping cough, 2; heart disease, 24; bronchitis, 13; marasmus, 4. There were 3 deaths from violent causes. The number of children who died under one year was 41; under 5 years, 68; of persons more than sixty years, 60; deaths in public institutions, 58.

SCARLET FEVER AT KEENE, NEW HAMPSHIRE. — A somewhat alarming epidemic of scarlet fever is reported from Keene. Some days ago 11 deaths had been announced, with less than 100 cases. The disease has spread to various sections of the city and a number of churches have been closed; the trustees have also voted to close the library building. Rigid quarantine measures are necessary to bring the disease under control.

INTERCOLLEGIATE STRENGTH RECORD AGAIN BROKEN. — A first year student of law at Harvard, Charles G. Herbert, has recently broken all intercollegiate strength records by attaining a maximum of 1,869 points. H. F. Cochems, also of Harvard, previously held the record with 1,809 points. Herbert is said to be a man of small stature, weighing 145 pounds.

DIPHTHERIA IN WALTHAM, MASS. — Diphtheria is reported to have again appeared in Waltham, with 1 death. Some of the cases reported have been sent to the contagious hospital, and the Board of Health is taking precautions to prevent the spread of the disease.

NEW YORK.

AN INCIDENT OF A VACCINATING TOUR. — An amusing incident occurred last week in a large apartment house in the borough of the Bronx, which had been quarantined on account of a case of smallpox. While the inspectors of the Board of Health were making a vaccinating tour of the premises they came across a sneak-thief in one of the flats who, not appalled by the danger of infection, had taken advantage of the confusion of the occasion to slip in and help himself to such valuables as could conveniently be appropriated. He represented, however, that he was "the son of the lady of the house," and, at the request of the inspectors, obligingly offered his arm for vaccination. Soon afterward "the lady of the house" herself appeared, and as she promptly stated that she had no son, the fellow was arrested, when a number of rings and other pieces of jewelry were found in his pockets.

ATTEMPT TO BURN A SMALLPOX HOSPITAL. — On March 9th a mob of about three hundred men, mostly Italians, attempted to burn a small frame isolation hospital in course of construction by the Board of Health at Orange, N. J., and it was necessary to invoke the assistance of the fire and police departments to put out the flames and protect the premises. The hospital is designed for the accommodation of smallpox patients, and there are at present two cases of the disease in the care of the health authorities.

A COMMON AND EXCUSABLE ERROR. — A man was severely injured by being dragged for a considerable distance by a trolley car. On making an examination, the ambulance surgeon of Bellevue Hospital expressed the opinion that because the pupil of the right eye was somewhat more dilated than that of the left, there was concussion of the brain present. "O doctor," said the patient, "you needn't mind the appearance of that eye. It's a glass one."

A LIBRARY BEQUEATHED TO THE ACADEMY OF MEDICINE. — By the will of Dr. Abbott Hodgman, who died in February, his extensive library is bequeathed to the New York Academy of Medicine.

AN AGED JEWESS. — On February 24th there was reported at the Registrar's office, New York

Health Department, the death of Leah Abrams, a Russian Jewess, at the extraordinary age of 114 years.

Miscellany.

APPEAL TO THE MEDICAL PROFESSION OF THE UNITED STATES.

THE undersigned constitute a committee similar to those formed in several European countries for the purpose of receiving subscriptions for a monument commemorative of the distinguished scientific services of Prof. Leopold Ollier. Among the members of these committees are Lord Lister, Professors Von Bergmann, Czerny, Durante and other leading men. The municipality of the city of Lyons has dedicated an open space, adjacent to quarters of the various academic faculties on the border of the Rhone, named in his honor "Place Leopold Ollier."

The profession of this country is well aware of the great services rendered by Professor Ollier, especially in the domain of plastic and osseous surgery. His labors have been most fruitful in the domains of surgery, of physiology and of pathology.

The committee hopes to raise not less than $1,000 as a testimonial from the profession of America. Checks should be forwarded to W. W. Keen, 1729 Chestnut Street, Philadelphia, Pa., at as early a date as possible.

Committee.— Robert Abbe, New York; William T. Bull, New York; P. S. Conner, Cincinnati; A. T. Cabot, Boston; Howard A. Kelley, Baltimore; W. W. Keen, Philadelphia; Rudolph Matas, New Orleans; William J. Mayo, Rochester; W. F. McNutt, San Francisco; Roswell Park, Buffalo; Clayton Parkhill, Denver; Maurice H. Richardson, Boston; Nicholas Senn, Chicago.

RESOLUTIONS ON THE DEATH OF FREDERICK LYMAN THAYER, M. D.

AT a meeting of the staff of the Newton Hospital on March 5, 1901, the following resolutions were unanimously adopted:

WHEREAS, The staff of the Newton Hospital hears with deep regret of the loss of one of its oldest and most honored members by death, and

WHEREAS, The profession of medicine throughout the city loses a valuable associate and wise councillor, and many a poor family will keenly feel his absence when affliction is upon them, therefore it is

Resolved, That in [the death of Dr. Thayer the hospital loses one who, from the opening of the institution, took an active and self-sacrificing part in the practical duties at the bedside. His daily visits were greeted by many who looked to him for sympathy and encouragement. His social and official methods in behalf of the institution will long be remembered and cherished as among the helpful things that have brought it to its present prosperity. By his judgment much that might have embarrassed the government in its developmental workings was avoided.

Resolved, That we extend to his family our heartfelt sympathy, and that we attend the funeral in a body.

Resolved, That a copy of these resolutions be sent to his wife, that they be printed in the city papers and the *Boston Medical and Surgical Journal*, and spread upon the records of the Newton Hospital.

GEORGE L. WEST,
Secretary.

EDWARD P. SCALES, *President.*
FRANCIS E. PORTER,
FRANCIS GEORGE CURTIS,
GEORGE E. MAY,
Committee on Resolutions.

Obituary.

RICHARD J. DUNGLISON, M. D.

DR. RICHARD J. DUNGLISON, a well-known editor and author of many medical works, died last week in Philadelphia. Dr. Dunglison was a son of Professor Robley Dunglison of Jefferson Medical College, Philadelphia, and studied medicine under his father's direction. He was one of the originators of the *Philadelphia Medical Times*, and was the author of "Dunglison's Medical Dictionary," for which alone he will long be held in remembrance, and "Dunglison's History of Medicine." He was in the Federal service from 1862 to 1865, as acting assistant surgeon. He was assistant secretary of the International Medical Congress, 1876, and corresponding secretary of the Centennial Medical Commission, 1876; he was also secretary of the executive committee of the Ninth International Medical Congress at Washington, D. C., September, 1887, and chairman of the finance committee of that congress. Within a few months has appeared the twenty-second edition of his "Dictionary of Medical Science," which stands pre-eminent among books of this sort.

Correspondence.

NOTES ON X-LIGHT: AN UNPUBLISHED METHOD OF DOWERING THE RESISTANCE OF AN X-LIGHT TUBE.

MR. EDITOR:— If the target of an x-light tube is made of sufficient size and thickness it may be used as a reservoir from which gas can be drawn when it is desired to lower the resistance of a tube. In my notes in the *American Journal of Science* I showed that in a properly constructed tube the target must be placed at the real focus of the cathode stream instead of at the centre of curvature of the cathode as recommended by Crookes, Roentgen, E. Thomson and others. When properly placed the surface of the target struck by the cathode stream is an oval spot about two millimetres long. By means of a magnet the point of impact can be shifted to any other part of the face of the target, thus liberating gas from the metal and lowering the resistance of the tube.

Truly yours,

WILLIAM ROLLINS.

METEOROLOGICAL RECORD.

For the week ending March 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity		Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...24	29.67	22	28	17	84	48	66	N.W.	W.	14	12	O.	C.	.14
M..25	29.95	26	38	14	57	56	56	S.W.	S.W.	13	15	O.	O.	—
T...26	29.73	36	47	25	66	48	57	S.W.	W.	14	14	O.	O.	—
W..27	29.93	24	29	19	56	52	54	W.	W.	17	16	C.	C.	—
T...28	30.19	20	27	13	46	45	46	W.	W.	11	15	C.	C.	—
F.. 1	29.91	30	42	19	51	58	54	S.W.	S.W.	12	24	F.	O.	—
S... 2	29.76	38	45	30	63	70	66	S.W.	N.	8	14	O.	O.	.12
☞	29.98		37	20			57							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 2, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1,410	400	22.33	20.06	2.13	.78	2.65
Chicago. . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	538	161	20.83	13.95	1.67	.93	5.21
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	238	54	18.90	22.26	—	.42	2.52
Cleveland. .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	133	55	21.80	23.31	.75	10.53	—
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	79	17	16.51	30.48	—	2.54	1.27
Boston . . .	560,892	240	67	27.94	18.32	3.20	—	4.58
Worcester. .	118,421	32	6	9.36	9.36	—	—	3.12
Fall River. .	104,863	—	—	—	—	—	—	—
Lowell . . .	94,969	39	9	—	—	—	—	—
Cambridge .	91,886	30	7	29.97	16.65	—	—	6.67
Lynn. . . .	68,513	29	6	6.90	17.25	—	—	—
Lawrence . .	62,559	30	15	3.33	26.64	—	—	—
New Bedford.	62,442	26	8	3.84	30.72	—	—	—
Springfield .	62,059	25	3	20.00	20.00	—	—	—
Somerville .	61,643	17	8	17.64	23.52	5.88	—	—
Holyoke . .	45,712	17	5	41.16	5.88	—	—	11.76
Brockton . .	40,063	10	1	10. 00	—	—	—	—
Haverhill .	37,175	10	2	—	20.00	—	—	—
Salem . . .	35,956	23	6	8.70	21.75	—	—	—
Chelsea. . .	34,072	9	1	—	—	—	—	—
Malden. . .	33,664	8	2	12.50	12.50	—	—	—
Newton. . .	33,587	7	1	—	42.90	—	—	—
Fitchburg .	31,531	8	2	—	25.00	—	—	—
Taunton . .	31,036	—	—	—	—	—	—	—
Gloucester .	26,121	10	2	—	—	—	—	—
Everett. . .	24,336	10	2	20.00	—	—	—	—
North Adams	24,200	9	2	—	33.33	—	—	—
Quincy . . .	23,899	7	1	14.30	28.60	—	—	—
Waltham . .	23,481	7	—	28.60	14.30	—	—	14.30
Pittsfield . .	21,766	7	—	71.40	28.56	—	—	—
Brookline . .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	7	3	14.28	28.56	—	—	—
Medford . .	18,244	3	—	—	33.33	—	—	—
Newburyport	14,478	14	5	7.14	35.70	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 3,044; under five years of age 855; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 629, acute lung diseases 582, consumption 332, diphtheria and croup 88, diarrheal diseases 43, scarlet fever 49, influenza 25, typhoid fever 33, whooping cough 26, cerebro-spinal meningitis 6, measles 13, erysipelas, 15.

From whooping cough, New York, 8, Pittsburg, 5, Baltimore, 2, Philadelphia, 1, Boston, 4, Pittsfield, 2, Springfield, 2, Cambridge and Holyoke, 1 each.

From cerebro-spinal meningitis, Providence, Philadelphia, Boston and Worcester, 1 each, Pittsfield, 2. From scarlet fever, New York, 30, Philadelphia, 9, Pittsburg, 1, Boston, 7, Lowell and Springfield, 1 each. From typhoid fever, New York, 11, Pittsburg, 14, Philadelphia, 5, Providence, 2, Baltimore, 1. No deaths were reported in Massachusetts from typhoid fever.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099 for the week ending February 16th, the death rate was 19.5. Deaths reported 4,408; acute diseases of the respiratory organs, (London) 420, whooping cough 105, diphtheria 71, measles 78, diarrhea, 35, fever, 32, scarlet fever, 27.

The death rates ranged from 11.7 in Burnley, to 28.8 in Liverpool, Birkenhead, 22.7, Birmingham, 22.8, Blackburn, 19.5, Bolton, 16.6, Bradford 13.3, Brighton, 18.8, Bristol, 19.2, Cardiff, 13.9, Croyden, 18.2, Derby, 18.1, Gateshead, 16.7, Hull, 20.6, Leeds, 17.5, London, 19.3, Manchester, 22.5, New Castle-on-Tyne, 19.3, Norwich, 27.3, Oldham, 17.4, Plymouth, 25.1, Portsmouth, 18.8, Salford, 20.1, Swansea, 17.0, West Ham, 15.2, Wolverhampton, 17.9.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene will meet in Sprague Hall, Boston Medical Library Building, Number 8 The Fenway, Wednesday, March 20th, at 8 P. M.

Papers: Dr. H. F. Vickery, "The Plague."

Dr. S. O. Baruch, of New York: "Some Aspects of Hydrotherapy."

Dr. G. C. Smith: "The Value of Suggestion."

Discussion by Drs. J. J. Putnam, Morton Prince and E. W. Taylor.

H. F. HEWES Secretary,
3 Fairfield Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the society will be held in Sprague Hall Medical Library Building, on Monday, March 18, at 8.15 P. M.

Papers: Dr. J. L. Goodale, "The Correction of Old Displacements of the Nasal Bones."

Dr. J. S. Stone, "Cleft Palate."

ARTHUR K. STONE, M. D., Secretary,
657 Boylston Street.

EXAMINATIONS FOR DENTAL SURGEONS IN THE UNITED STATES ARMY.

Candidates for appointment as dental surgeons in the United States Army will be examined in the following named branches: Anatomy, physiology, histology, physics, chemistry, metallurgy, dental anatomy and physiology, dental materia medica and therapeutics, dental pathology and bacteriology, orthodontia, oral surgery, operative dentistry, theoretical; prosthetic dentistry, theoretical; operative dentistry, practical: prosthetic dentistry, practical. An average of 75 per cent. will be required in each subject for theoretical examination, and 85 per cent. in the practical examinations.

RECENT DEATH.

ROBERT STONE, M. D., of New York, sixty-four years old, died on March 7th, after a tracheotomy operation for an affection of the throat. He came of an old Massachusetts family, and was the son of Joel Stone, a prominent New York merchant. He first attended lectures at the Yale Medical School and was afterward graduated from the College of Physicians and Surgeons, New York. In 1864 he was appointed an assistant surgeon in the United States Navy. A considerable portion of his professional career was spent in Yonkers-on-the-Hudson.

BOOKS AND PAMPHLETS RECEIVED.

Oral Sepsis as a Cause of "Septic Gastritis," "Toxic Neuritis," and other Septic Conditions. Illustrated. By William Hunter, M.D., F.R.C.R., Senior Assistant Physician London Tens Hospital, etc. London, Paris, New York, etc.: Cassell & Co. 1901.

King's College Hospital Reports: being the Annual Report of King's College Hospital and the Medical Department of King's College. Edited by Norman Dalton, M.D., F.R.C.P., Albert Carless, M.S., F.R.C.S., John Phillips, M.A., M.D., F.R.C.P., W. D. Halliburton, M.D., F.R.S. Vol. VI. (October 1, 1898, to September 30, 1899). London: Adlard & Son. 1900.

Original Articles.

PUERPERAL INSANITY.[1]

BY ARTHUR C. JELLY, M. D., BOSTON.

The so-called puerperal insanity is not common, and without doubt some of you have never seen a case of it; but those who have been so unfortunate as to have such cases occur in their practice will probably agree with an eminent alienist, who characterizes it thus: "I do not know of any event that can occur in a family, short of death, that is so great a shock to all who have to do with it as for a new-made mother of the first-born child to become suddenly maniacal and require to be sent to an asylum. One of the most joyous times of life is made full of fearful anxiety, and the strongest affection on earth is then often suddenly converted by disease into an antipathy." Certain specialists believe that preventive measures might sometimes have been made effective, if the attending physician had appreciated the earliest symptoms of impending danger. The gravity of the condition and the possibility of prevention appear sufficient reasons for presenting the subject before this society.

In examining the medical records of the Institutions' Registration Department of the city, with reference to the question of the increase of insanity, I was struck with the apparent decrease of puerperal insanity, though certain names of women afflicted with this disorder were frequently encountered. Without expecting to add very materially to the present knowledge of the subject, I wondered whether it might not be worth while to collect all the cases where the puerperal state was the assigned cause of the mental disorder, and then to ascertain their hospital record, and possibly their subsequent history. Such a collection might give a broader view than was afforded by the records of any one hospital.

From 1872 to 1900 about 250 such patients were examined. Fifty of these have been excluded, because the conditions found did not warrant a certificate of insanity, or because a rapid improvement, or some other reason, led to keeping the patient at home, or because the insanity was due to other causes than the puerperal condition. There remain about 200 where the puerperal state is the alleged cause, whose hospital record is at our disposal. These people represent the middle and lower classes socially, some very poor, others in comfortable circumstances. The majority were examined at home; some in hospitals or charitable institutions; others in the hands of the police at the House of Detention; 12 had been recently delivered at the Lying-in Hospital.

The term "puerperal insanity" may be used broadly to cover cases of disorder arising at any time during pregnancy, or soon after confinement, or several months later; but it is customary to limit it to cases which develop within six weeks after delivery, and to describe the other cases by the terms "insanity of pregnancy" and "lactational insanity."

In the early months of pregnancy, it is not so very uncommon to encounter symptoms of mild mental disturbance, such as irritability, eccentricity, perverseness, moderate depression of spirits. Such a condition usually lasts only a short time. If the disorder appears for the first time toward the end of pregnancy, it is apt to be much more serious in character and longer in duration. Sometimes a slight improvement may be noted after delivery, but it is usually only temporary, and the patient soon becomes worse. Thus it is evident that delivery has not essentially improved the mental condition. On the contrary, a mild case frequently develops in the week following delivery into a very severe one.

The insanity of lactation seems due largely to anemia and debility; its symptoms are usually gradual in onset, subacute in course, not very grave in character; on the contrary, some cases show a sudden onset of violent excitement with fatal termination, and others profound melancholia with suicidal tendencies.

It does not seem consistent with the laws of nature that a normal woman should become insane from passing through a physiological process. And yet this process brings such great changes, physical and mental, that one's neighbor is shocked rather than surprised upon hearing that an attack of insanity has quickly followed childbirth.

From an etiological standpoint one may divide cases into two distinct groups: In the first, the puerperal conditions appear to be the sole cause of the insanity; such are those due to sepsis, many due to exhaustion, some probably due to auto-intoxications. In the second group, preparations were already made, and the puerperal state opened the door, and thus the psychosis was liberated (*ausgelöst*—Kraepelin). In other words, it acted here just as worry, financial losses, grief or the period of puberty may act to add the weight needed to turn the scale. Indeed, there may occur several attacks of this sort in the same person, where each attack was apparently excited by a different one of this group of causes.

Another group should be mentioned. A defective or somewhat demented person, or one who has delusions (though living comfortably and quietly under the conditions of ordinary domestic life), may, when pregnant, become excited or depressed, and present a picture whose most striking features may be those of a puerperal insanity, but in which features of the chronic state are detected upon critical examination.

If, now, we turn to the clinical features and ask whether there is anything that we may describe as a type of puerperal insanity, we find just such a diversity as would naturally be expected from what has just been said. Viewed rather superficially, many of the clinical pictures do not seem to differ very much one from another, but on closer inspection may show widely differ-

[1] Read before the Obstetrical Society, May 15, 1900, and unavoidably delayed in publication.

ent diseased states. The following cases will illustrate this point: Of 3 cases, where the striking feature was a perplexity, due apparently to confusion, with restlessness, insomnia and anorexia, the first was an attack of simple excitement, the second was upon a basis of congenital defect, and the last was an episode in the course of a general paralysis. Three cases that would impress one at once as melancholia, proved on analysis in the same way to represent: one an attack engrafted on a slight congenital defect, another a form of recurrent psychosis, the third a general paralysis. Thus it seems best not to attempt the description of a sort of case which seems most typical, but to bear in mind the possibility of wide differences — important especially for prognosis.

Insanity is said to occur once in 400 deliveries. As to its frequency in hospitals for the insane, the following figures may be quoted:

	Puerperal.	Pregnancy.	Lactational.	Total.
Clouston,	5%	1%	4%	10%
Krafft-Ebing,	9.2%	5.6%	3.1%	17.9%
Kraepelin,	6.8%	9%	4.9%	14.7%

Our ratio is 3 puerperal and 2 lactational to 1 of pregnancy.

Etiology. — The relation between etiology and prophylaxis is so close that we are warranted in studying the causes in detail. The great predisposing cause of insanity in general is heredity. We should look for this in the collateral as well as in the direct lines of the family, and we must consider epilepsy, apoplexy and various nervous diseases, because these may lead to nervous instability of such a sort that the person is liable to serious breakdown at any period of stress. A history of heredity is found in about one-third of our cases. This undoubtedly does not represent the whole number, because such a family history is often concealed.

Tuberculosis is so often found in the family history of cases of insanity that it must be admitted to be an important predisposing cause.

Alcoholism is an important factor, because if it exists to any great extent in either parent of the woman, it may lead to those neurotic conditions in her which predispose to insanity. Moreover, a woman may, by drinking to excess, be laying the foundation for an attack of insanity when she becomes pregnant. It happens, however, sometimes that the alcoholism is merely one of the signs of disturbed mental condition due to pregnancy in a woman temperate when not pregnant.

Epilepsy or even profound hysteria may possibly be responsible, according to Kraepelin, for certain sudden outwardly severe delirious states of excitement, which arise rarely during the act of delivery and soon pass off. In certain of our cases epileptics during pregnancy or after confinement developed insanity.

The physical condition seems often the only important etiological factor. As psychic causes, grief, fright, worry, domestic unhappiness are mentioned frequently. In such instances as the following, worry might easily play an important rôle: A woman had an attack of insanity after each of her three pregnancies, and her sister, a primipara, could not banish from her mind the probability in her own case; a woman whose mother had died in childbirth learned when seven months pregnant of the death of her sister from puerperal fever. In such cases there may be no history of hereditary tendency. Undoubtedly, illegitimacy operates as an important psychic factor, though the poor physical condition often associated with illegitimacy must not be overlooked. Clouston states that insanity is twice as common after the birth of illegitimate as legitimate children; and this is exactly the ratio in the Lying-In Hospital series — 8 of the 12 were single women.

How many cases are clearly septic? This is the most important division of the subject for you. Dr. Chapin attributes the decrease from 99 very acute cases admitted to the Philadelphia Hospital in the ten years preceding 1877, to 20 such cases in the ten years preceding 1897 to the introduction of stricter antiseptic measures in obstetrical practice in Philadelphia; and he emphasizes the opinion that a further reduction might be made if in every case every source of septic infection could be excluded. Dr. Brush, in the *American Medical Quarterly*, cites statistics from the Kalamazoo Asylum, where the percentage of puerperal cases fell from 7.8% in the decade 1877 to 1886, to 3.8% in the years 1887 to 1896, and also from the asylum at St. Peter, Minn., where the experience was similar. In Boston there has been a decrease in ratio, puerperal to total female cases as follows: 1872–1880, 6.4%; 1880–1890, 4.6%; 1890–1900, 3.7%. But an examination of the most acute cases, some of which were clearly septic, fails to show a corresponding decrease. It seems fair to assume, therefore, that here in Boston prevention of sepsis has played a less important part than some other factors in the reduction. In this connection it has been suggested that a state of the pelvic organs resulting from previous disease may be the starting point for a septic process in spite of perfect technique on the part of the obstetrician. It is certainly a fact that certain cases of excitement which have been attributed to profound exhaustion are clinically like septic cases, except that the temperature is usually not so high, and there is no vaginal discharge. Possibly an ether examination would help somewhat.

In spite of our rather favorable statistics, however, this subject is so important that we may expect our profession to continue improving its methods until no case of insanity can be justly ascribed to puerperal sepsis.

Toxic States. — Defective elimination by the kidneys leads to delirious states which are frequently very transitory. The following extract from Kraepelin loses something in my imperfect translation: "The psychic phenomena of poisoning depend, (1) on the kind of poison; (2) on the rapidity with which it does its work. Rapid poisonings of the brain are usually expressed in conditions of delirious confusion with more or

less lively disturbances of sense-perceptions and often with excitement. While in slow destruction by the poison, signs of intellectual paralysis occupy the foreground. Naturally in each case the clinical picture is determined very essentially by the special properties of the poison. From the work of Nissl and others it seems probable that for every poison there is a characteristic disease-process in the nervous tissue, whose special traits we may learn to separate, in the earliest stages, even anatomically. Moreover, the investigations of the psychic effects of poisons — as far as they have been exactly carried out — have taught us that for every poison there is a special distribution of effect upon the different regions of the soul's life. Likewise, we are at last in a position to recognize in many cases the nature of the poisoning by the symptoms observed clinically. Only in rare forms, in most of the auto-intoxications, in many slow and insidious poisonings, is it still impossible to infer the cause of the disorder from the clinical picture."

By analogy it seems probable that when careful clinical observations and accurate laboratory studies are made simultaneously upon the same cases, we may find a sort of puerperal insanity due to auto-intoxication. Such a group might include many cases now attributed to exhaustion.

Sometimes several causes appear to have played a part in producing the disorder. This record made in one case under supposed cause shows the thoroughness of one physician: congenital mental deficiency, alcoholism, masturbation, confinement, and grief at loss of child. But sometimes no cause is found except the puerperal state itself. Indeed, Clouston says, "In far the majority there is no other exciting cause; the psychology of pregnancy has not been written." There are certain individuals whose makeup is such that they are liable to serious mental disturbances when the stress of their environment becomes great. Such women naturally have trouble at puberty, at the climacterium and in the puerperal state.

Symptoms. — In many cases symptoms were sudden in onset and severe in character, and reached a climax of wild excitement in twenty-four hours. Frequently, however, symptoms mild at first gradually increased in severity or suddenly gave way to an outburst of excitement. In cases of gradual onset the first symptoms noted were frequently these: A change of manner so that the patient became somewhat indifferent and neglectful of the child and of her household duties. She grew reticent, and her face showed a peculiar expression of watchfulness, as if she were anxious and yet unwilling to reveal her state of mind. On the other hand, many patients were moving constantly, talking incessantly, as if somewhat exhilarated. Nearly all showed early loss of appetite and inability to sleep. Later a patient may be confused, suspicious, resistive, depressed, less often excited; frequently she has impulses to suicide, or she makes attempts at suicide in an impulsive way; less often impulses or attempts to injure the child are recorded. Assaults upon others are usually due to fear. Rarely there is a condition of marked stupor. Seldom does a patient become exhilarated in the strict sense of the word, that is to say, with a marked sense of well-being, rapid flow of ideas, and extreme activity, with a thoroughly happy state of mind. On the contrary, in our cases, though they were frequently noisy and incoherent and very active, and sometimes destructive and violent, these symptoms appeared to represent a mental state of confusion or perplexity, with a feeling of helplessness. Wernicke's term "Rathlosigkeit" is most aptly applied here. Hallucinations occur, of hearing more often than of sight, and they are usually of a distressing character. Delusions are also distressing and frequently are concerned with religion.

Course and Outcome. — After a short period many of the most excited cases become comparatively quiet and no longer suffer from hallucinations and delusions. Sometimes this change is so rapid that a diagnosis of alcoholic insanity is made; and in certain cases this factor is undoubtedly partly or wholly responsible for the condition. But if the case were due to an auto-intoxication, which ceased under the conditions subsequently established, then we might reasonably expect an equally rapid subsidence of symptoms.

English writers especially emphasize the short duration and curability of this group of cases. Clouston writes that 75% of his puerperal cases recovered completely, while 8% died; that 90% of these recoveries took place in six months; that 77% of his lactational cases recovered, 80% of them in six months; that 60% of the insanity of pregnancy recovered. Krafft-Ebing gives the average duration of hospital cases due to pregnancy and lactation as nine months, and eight months for puerperal cases. Many septic cases are of short duration and end in death. Others improve after removal of the source of sepsis, but not all of them recover.

Some cases of exhaustion live only a few days. If they recover, more time is needed than for the septic cases as a rule.

Many cases of excitement, on the road to recovery, pass into a state where they are more quiet than is natural for them when well, or even into a condition of stupor. And many others who do not appear especially dull have no subsequent recollection of the events of the attack. Some have exacerbations of excitement, followed each time by an improvement until recovery is established. The average case improves gradually, often the body before the mind, but usually both together.

Recurrence. — Thirty patients had more than one attack. In 6 all the attacks were puerperal (including here pregnancy and lactational). In 8 the first attack was puerperal. In 5 the first attack was not puerperal. In 11 the first attack is not accurately described, later some attacks were puerperal. In many the attacks were very similar in symptoms, course, duration and outcome, others showed considerable variation, but

are to be regarded as representing similar disease-processes and clinical pictures so much alike that they may be classed together. One woman was admitted to a hospital for the insane in 1870 in her first attack and in 1899 in her seventeenth attack. She has been discharged, recovered or much improved, seventeen times and is said to be very little if at all demented.

ONLY ONE ATTACK; 147 PATIENTS.

	Total.	Recovered.	Died, Acute.	Died, Chronic.	Living, Chronic.	Result in Doubt.	Average Duration—(including hospital residence and duration previous to this).
Puerperal, very acute[1] cases.	47	36	4		7		36 cases, 7.0 mos. 34 " 5.5 "
Puerperal, less acute[2] cases.	31	11	2	4	13	1	11 " 6.5 " 10 " 5.8 "
Lactational cases.	46	14	3	5	19	5	12 " 7.5 " 10 " 6.0 "
Pregnancy cases.	15	7	3	2	3		6 " 13.0 "
Miscarriage cases.	8	5	1	2			5 " 9.6 "
	147	73	13	13	42	6	70 cases, 7.7 mos. 65 " 6.6 "

Causes of death in acute cases: sepsis, 3; exhaustion, 4; suicide, 2; phthisis, 2; exhaustion and bronchopneumonia, 1; unknown, 1.
Causes of death in chronic cases: phthisis, 12; unknown, 1.
[1] Patients in whom symptoms developed within two weeks after confinement of such a character that they were received at the hospital three weeks after confinement.
[2] Symptoms within six weeks after delivery.

MORE THAN ONE ATTACK; 30 PATIENTS.

	Recovered and remained well.	Became chronic.	Died.	Now ill in hospital.	Doubtful, probably recovered.	Total cases discharged recovered.
Two Attacks.	6	5	3		1	20
Three "	3	1		1	1	13
Four "	1	2			2	7
Five "						
Six "	1					6
Seven "		1		1		12
Seventeenth Attack.	1					17
Total.	12	9	3	2	4	75

MENTAL DEFECT OR DISORDER EXISTED BEFORE PREGNANCY BEGAN; 20 PATIENTS.

	Number of patients.	Discharged much Improved, Dementia slight if any.	Discharged Improved Dementia considerable.	Discharged not Improved.	Transferred to chronic Asylum.	Died, carcinoma.
Epilepsy.	3	1	1		1	
Imbecility.	3			2	1	
Secondary Dementia.	5	1	2	1	1	
Paretic Dementia.	1					1
Dementia Precox.	3	1		2		
Delusional Insanity.	5	2		1	2	
	20	5	3	6	5	1

In calling your attention to the figures that follow I feel bound to express my skepticism as to the value of statistics of this sort. No matter how carefully compiled, they are necessarily inaccurate. Allowing for this inaccuracy, however, they may be useful if considered very broadly.

Prognosis. — The prognosis as to life is very good. Of our cases 13 died in the first attack and 3 in the second; of the chronic cases, 14.

The prognosis for recovery from the attack is variously stated to be from 70% to 80% of the cases in asylums, and since many mild cases never go to an asylum, the percentage of recoveries is often stated as probably nearer 90%. Our cases do not warrant so favorable a prognosis. Moreover the tendency to recurrence must be taken into account, because, as we have seen, many cases recover from several attacks, but finally become chronic and demented.

The insanity of pregnancy does not disappear with delivery. A short temporary improvement should not mislead us, because often the patient soon becomes worse than ever before. Speaking of insanity in general, Clouston says, "I look upon a temperature of 100 and over with alarm in any form of mental disease, and in the estimation of the intensity of brain overaction, one-half a degree is equivalent to two degrees in the measurement of a febrile disturbance."

The return of menstruation is a good sign, not because it in any way leads to recovery, but because it indicates a return to normal condition on the part of the bodily functions. Recovery once well started usually progresses steadily, so that patients are frequently allowed to leave the hospital much earlier than when they are suffering from any other form of mental disease.

We have seen that the same clinical picture may have for its foundation a very different diseased state, and, therefore, before giving a prognosis we should be careful to determine whether we are dealing with a simple or complicated condition; because, after all, "The prognosis will be dependent upon the degree of defect in the nervous organization of the woman rather than any external conditions which may have complicated what might have been otherwise a physiological process."

Treatment. — At the outset it was suggested that possibly some of these cases might be prevented if the physician has in mind the conditions which are liable to lead to attacks of this sort, and if he is alert to note the early symptoms as they appear. It seems hardly possible to emphasize too strongly the importance of prevention, for though the mental symptoms of pregnancy are usually mild and temporary, and frequently pass off without treatment, this is not a sufficient reason for neglecting to treat the patient seriously, because, as we have seen, many cases pass gradually into a very serious condition, which leads to an attack of insanity, and ends in dementia. When the physician has reason to suspect the existence of conditions favorable to the development of insanity, he should instruct the patient to establish the most perfect hygiene possible in her home during her pregnancy, and if danger

signals, pointing to instability, appear at any time, he should at once seek to remove the cause if possible, and endeavor in every suitable way to restore the balance. Special attention should be paid to the digestive and eliminative functions, to exercise in the open air; excitement should be avoided, and sources of annoyance removed. Sleep is very important. If the conditions just mentioned are fulfilled, especially if the person is much in the open air, sleep may sometimes be obtained without the use of drugs; and we should avoid drugs, not only on general principles but out of consideration for the possible effect upon the child. Serious mental disturbance during the pregnancy is not to be regarded as an indication for inducing labor.

When mental disturbance appears after delivery it is wise not to act hastily, but to wait until it is clear that the patient is suffering from something more than a mere temporary affair before deciding the question whether she shall remain at home or be sent away for treatment. Since many cases which are explosive in their onset, and which show the gravest symptoms, are very frequently of short duration and end in recovery, it is often desirable that such should be treated at home if possible. Moreover, septic cases require surgical treatment of local conditions and such general treatment as would be proper for a septic case with fever and delirium, so that even violently maniacal cases of this sort may be treated at home if a sufficient nursing force can be obtained. In cases of profound septis or rapidly progressive exhaustion, death is liable to occur within a few days, and it is especially unfortunate to remove such a patient to an insane hospital and have her die there in twenty-four hours, as happened in one of our cases. Moreover, one may question whether the journey to the hospital might not be enough to turn the scale; therefore, one may properly hesitate about sending such cases away. If home treatment is adopted it frequently is necessary to turn a portion of the house into a hospital, because the patient may become excited, noisy, violent, destructive, suicidal or homicidal. Our first consideration must be to prevent loss of life. The presence of the child, and in less degree also of the husband, appears often to be a source of nervous excitement and irritation to the wife, even when there is no real danger from impulsive acts on her part; but a sufficient number of cases have been recorded where the mother tries to kill the child to warrant us in saying that it is usually desirable and frequently necessary to separate the mother and child because of danger to the latter.

Our next care should be for the mother herself. The physician should explain to every one in attendance how great is the danger of suicide, how stealthily and suddenly and rapidly such people often commit the act, and he should demand the greatest vigilance on the part of every one. Moreover, this caution should be given not only at the outset, but should be repeated at frequent intervals afterward, because if the patient improves the attendant may omit precautions too soon. The next indications are to maintain strength, to improve nutrition, and to insure sleep. Cases of mania frequently take food readily, so that we have no great difficulty in providing sufficient nourishment to meet the vast demands upon their strength, made by their great activity; but the majority of puerperal cases suffer from a loss of appetite which may be so great that they refuse all food. No time should be lost, but vigorous treatment should be begun at once by the use of simple, easily digested nourishment at frequent intervals. Nutrient enemata may be of service, but usually feeding with the tube, through the mouth or nose, will be necessary in the severe cases. This is neither easy nor safe in the case of an excited patient without the help of several assistants. It is often wise to peptonize some at least of the food so given.

It is usually necessary to give more or less alcohol. Insomnia is a sympton which calls for attention very early in the majority of cases. Sleep of several hours' duration will often follow the administration of food and stimulants, but hypnotics should be used freely at this time if necessary. There can be no doubt that here, as in an impending attack of delirium tremens, a few hours' sleep may prevent a serious and prolonged attack. After giving a reasonable quantity of the hypnotic selected, if the patient remains wakeful more food and stimulants should be administered, when it is often almost wonderful how soon sleep comes. If the patient wakes early in the morning hot milk or broth should be made ready promptly and given at once.

Puerperal cases in the excited stage are so oblivious of the calls of nature that the bladder may become over-distended and the rectum overloaded. Moreover, such patients are more or less anesthetic, so that they do not complain of pain or discomfort as ordinary patients do, and thus your attention will not be called to the condition of these organs or to inflammatory trouble in the pelvis or elsewhere.

In the treatment of lactational cases it is of course naturally suggested that nursing should be stopped and that debility and anemia should receive proper treatment. A large number of these cases are depressed, and in many the depression is profound and there is a tendency to suicide, which is attended with greater deliberation and is carried out less impulsively and therefore with greater chance of success than in the puerperal cases; so that it is necessary to guard what often seems a mild case from this danger.

Home treatment of insanity is possible for only a few cases. The expense is too great for most people, and the private or public hospital is a necessity for all such.

THE GRAVE OF HIPPOCRATES.—A London paper reports, according to the *Medical News*, that a telegram from Athens announces the discovery of the grave of Hippocrates, during excavations at Larissa. The report needs verification.

MEAT RATION IN THE TROPICS.[1]

BY P. R. EGAN,
Surgeon U. S. Army.

FOLLOWING the late Spanish War, American soldiers were scattered from the Arctic Circle to the Equator. Speculation as to their requirements under these new surroundings soon became rife. The necessary clothing alterations were sufficiently apparent, but the requisite food is still a matter of discussion. In the first days of the occupation of Puerto Rico an officer of the line wrote home that his principal food consisted of crackers and milk, and that he was in excellent health because he avoided all heating diet.

Physiologists had for a long time observed that there was a rise of body temperature of nearly one degree in the tropics; that the pulse rate was lowered; that respiration and blood pressure were diminished; and that there was a marked languor and tendency to depression. Proteids and fats increased heat production, and should, it was stated, be abandoned or used very sparingly. They also proceeded to analyze the diet consumed by the Negro in the Antilles, the Hindoo in India, and the Malay in the Eastern Archipelago, and to point out a great diminution of the proteids and fats in his dietary. But they also discovered that the carbohydrates were diminished to an equal degree; or, in other words, that their diets were those of chronic starvation, a condition that exists to some extent in most tropical countries where the rate of increase of population is so great that the country is unable to raise sufficient produce to feed them, and where, as in India, famines are now beginning to be regarded as inevitable. Overlooking these facts they declared that there was need of more sugar and tropical vegetables, and less meat and fat to reduce our dietary to their standard; that is, to the standard of those who are unable to procure nourishing food. But coming nearer home, these same physiologists would not for a moment declare that because the Crofter lives on oatcake, and the Cottier on potatoes, that the diet suitable to Scotland was oatmeal, and to Ireland potatoes. Yet, guided by their theories, some, like the line officer, lived principally on crackers and milk, and others believed like Major Louis Livingston Seaman, surgeon to the First Volunteer Engineers, who is reported as declaring before the board of officers on the Tropical Ration that what should have been a delightful outing for his regiment was turned into a tragedy because of the heating foods his troops had to eat. When they landed in Puerto Rico not a man was on sick report. In less than three months nearly one-third of the regiment was on the sick list, and the rest were scarcely able to carry their personal belongings when they reached New York. Dr. Seaman said that all had suffered from bowel irritation, and that when they needed delicate food they had to use that which had inflamed the intestinal tract and had produced symptoms like a catarrhal condition, making the patient peculiarly subject to attacks of typhoid and other fevers. He also said the food used was diet food and not the regular rations. However, few of the persons who have had extended experience of the Tropics agree to the so-called heating effects of the proteids; nor does the diet of the natives who can afford other than starvation fare tend to support this theory. The late governor, General Henry, of Puerto Rico, wrote in December 1899: "The better class live and dress like ourselves. The food of this class, is for the early meal, coffee and bread for breakfast; at noon, coffee, vegetables, eggs, meat and dulces, or sweets. The night meal is about the same. They are great meat eaters, it being cooked in various ways."

In January of the same year Colonel O'Reilly, chief surgeon, Division of Cuba, who had been sent to Jamaica to investigate how Great Britain cares for her soldiers in the tropics, reported: "No improvement on the present ration of the United States can be suggested. If it errs at all it errs on the side of too great liberality." In December, 1899, I wrote the following letter to the *Boston Medical and Surgical Journal*: "As a supplement to the article of my scientific friend, Colonel Smart, on the "Army Ration," let me add a few practical observations gathered in Puerto Rico. Duty has taken me at one time or another, since the first days of the American invasion, into almost every town from Ysabella on the northwest coast to Humacao on the east coast, and then up the military road to this capital. In the districts of Guayama and Southern Humacao it was part of my business to investigate the cause of deaths among the natives. Everywhere I found the main cause assigned to be anemia and phthisis. Everywhere I went I was struck by this ever-prevalent anemia. The pale, yellowish, waxy skin, the bloodless lips, and the swollen, puffy features, formed a picture never seen by me outside of tropical Puerto Rico. Yet I soon found that these people had been living on rice, beans, maize, dried codfish and fruits. Meat very rarely entered into their diet. They and their fathers before them had lived exclusively on the diet urged by the public press as suitable for tropical climates, and the result filled the hospitals with such ghastly cases of anemia that no one who has once seen the picture can ever forget the impression. On the other hand, I soon discovered that the people who lived in the towns and could afford it ate two hearty meals daily. These people, I believe, use more meat than we use in American cities, and there is no doubt in my mind that I have used more meat and felt more need of it since I have been here than ever in the same time in the United States. Yet I am one of the few who did not have to go home for ill health; while the natives that eat in the hotels with me, and as freely as I do, are perfectly healthy individuals, and show not the least trace of anemia. Only a few days since, a native informed me with much gusto that one of the best things that Puerto Rico afforded was *chuleta de cerdo* (pork chops), surely one of the most unsuitable articles of diet

[1] Read before the Lyceum, Fort Douglas, Utah, January 25, 1901.

for a tropical climate, as our physiological friends will tell us, and yet the absence of which, in my opinion, made the native anemic to a noticeable degree. These observations are so common in this climate, and have been so forcibly impressed on me, that I feel more and more the wisdom of going very, very slowly in urging alterations in the ration."

Major Stephenson, Surgeon U. S. Army, also made the following statement: "My personal experience of a year in Tampa, Puerto Rico and Santiago was that I craved and ate as much meat of all kinds relatively to all food eaten in cooler climates. I believe that meat consumption among the natives of hot climates is limited to their purses, not to their tastes. In Cuba and Puerto Rico I found the noon and evening meals in private houses and restaurants prodigal of meats of all kinds."

The absurdity of arguing from theory and not from experience was forcibly impressed on me as I read on a balcony in San Juan the essay that gained the hundred dollar prize given by Major Louis Livingston Seaman for the ideal tropical ration. As I reached the part that discussed the "distaste for fats in considerable quantities, so early acquired in the tropics" I was aroused by the cry of the "Char-r-rone" vender. For more than a month I had noticed that same cry every afternoon. I had tried faithfully during that time to detect what he was calling out, but had as signally failed, until one evening I was fortunate enough to have an Englishman educated in Spain along with me when he made his rounds. Then I learned that "Char-r-rone" was the Puerto Rican abreviation for "chicharrones," and that this was Spanish for pork fried crisp with the skin on it. For twenty centavos I obtained a piece about a foot square. I found that while the outside was crisp the interior of my piece, an inch in thickness, was simply cold fat pork with a very little lean through it. The man sold it as a bonne bouche through the streets every afternoon. A couple of mouthfuls was all I desired to test, but the rapidity and relish with which my four little Puerto Rican girl friends devoured it gave me a striking example of the "distaste for fats in any quantity so early acquired in the tropics," and of the value to be attached to theories derived from analysis of "jibaro" dietary, as to what constitutes a suitable food for the tropics. On the other hand, it is now being claimed by some writers that the depression and languor of the tropics call for increased food and vinous stimulants, and this idea seems to be warranted by the large amount of meat, and of claret, or water with a dash of rum, used twice daily by the better classes of the population.

The board before which Major Seaman made his plea has recently, according to the public press, reported to the Secretary of War that, "The recommendation that the fresh meat ration be reduced in quantity was so opposed to all the teachings of experience, both in our country and in Cuba and Puerto Rico, that the board was unable to accept the recommendation as conclusive without further investigation. Two members of the board have served in Cuba and the third in Puerto Rico, and their personal experience has been that as much meat has been desired and eaten as in the United States, and with no deleterious effect on the health of the men. The natives of these countries are also large meat eaters when they are able to secure it, and the meat eaters are noticeably stronger and healthier looking than the poorer classes who from necessity are mainly vegetarians. The board also interviewed a number of officers and other persons that had been in the Philippines, and, taking all sources of information together, the board is of the opinion that it would be a mistake to make any fixed reduction in the meat ration." The criticism of General Henry in the above quoted article that, "The objection to the meat (of Puerto Rico) for an American is, that having no place to keep beef after being killed, it has to be put in the pot in a hot, quivering condition; and I believe this made many an American soldier ill," is in part well applied. Puerto Rican beef cannot be cooked American fashion and be other than tough and unpalatable, as it is killed about 3 o'clock in the morning, and eaten by 11 or 12 o'clock the same day. I had so fully recognized this fact that for more than a year before leaving the island I refused all "bifstek" or "rostbif," as presented by the seductive native. Only Swift or Armour refrigerated beef can in Puerto Rico be prepared American fashion. Native beef, however, prepared by native cooking, is tender and palatable, devoid of this objection and is habitually consumed with only the best results. In fact, when they ask us to replace the meat ration by vegetables we should not forget the Spanish motto that says: *Bellotas y tostones hacen malos trabajadores.*

BUBONIC PLAGUE.[1]

Report on the Plague in Manila, P. I., from Jan. 1, 1900 to June 30, 1900.

by joseph j. curry, m.d.

Captain and Assistant Surgeon, U. S. V., Philippine Medical Service; Member of the Board of U. S. Army Medical Officers to Investigate the Diseases of the Philippine Islands.

About the 1st of January, 1900, there were reported, from the walled city of Manila, a number of deaths with history of only few days illness — these cases occurring in the same block of dwellings. As the Board of Health was at this time without a laboratory equipment, Major-Surgeon Edie, U. S. Army, president of the Manila Board of Health, requested the assistance of the First Reserve Hospital laboratory. At the time I was in charge of this laboratory, and with the consent of Major-Surgeon W. R. Hall, U. S. Army, commanding the First Reserve Hospital, I placed the use of the laboratory, for the work of investigating

[1] Extract of a report to the Surgeon-General of the Army on the Diseases of the Philippine Islands. By permission of the Surgeon-General of the Army.

these cases, at the disposal of Assistant-Surgeon W. J. Calvert, U. S. Army, pathologist to the Board of Health. As in most of these suspicious deaths, there were reported to have been found greatly swollen glands. Bubonic plague was suspected, in spite of the assurances of the Spanish and native physicians that the plague never occurred in Manila.

I assisted Dr. Calvert, as did also Dr. Edwin R. Hodge, and Hospital Steward Musgrave, U. S. Army, in autopsies, with cultures, and in the experimental work. The greatest care was taken of the cultures, and in the inoculation and care of the animals. For nearly six weeks the plague work was carried on at the laboratory of the First Reserve Hospital. The disease was early shown to be bubonic plague.

Numerous cultures were made, and many animals inoculated, but no case of bubonic plague occurred as a result of this work in the laboratory. I continued the work on the plague in the months of March and April, at the Board of Health laboratory, during Dr. Calvert's absence in Japan. As Assistant-Surgeon Calvert will make a full report of *his* work later, it is unnecessary for me to go into details here.

I will confine myself to the statement of a routine method used in the examination of suspected plague cases, and to a few general remarks

ON THE DIAGNOSIS OF BUBONIC PLAGUE.

The plague bacilli do not appear in the blood until late in the disease, save in the rapid fulminating type. Blood *cultures* are therefore unsatisfactory, so also is the agglutination (Widal's) test with the plague bacillus, for an *early* diagnosis.

The most satisfactory method, I believe, is that of aspiration by means of a hypodermic syringe of one of the swollen glands, preferably, of one of the *recent* swollen glands. A hypodermic syringe with large caliber needle and tight plunger answers admirably. After cleansing and disinfecting the skin over the swollen gland, a few drops are withdrawn from the gland. The syringe may then be placed in a sterile box or a test tube and carried to the laboratory without danger. Now *three* things are to be done with the material in the syringe: (1) A drop is used to make cultures — best in melted agar tubes or in bouillon from which dilutions, cultures and plates can be made. (2) A drop is allowed to fall on a clean slide, which is then smeared by a platinum needle, to be used for direct examination. (Two preparations may be made from this.) (3) The remainder is injected into an animal (mouse, rat or other animal).

The plague bacilli occur in large numbers in the *glands* even early in the disease. The specimens on the glass slides are stained, one by Gram's method, and one with Zeihl's carbolic fuchsin, or Loffler's Methyl Blue. The presence of large numbers of characteristic short bipolar staining bacilli, which decolorize by Gram's method, makes the case at once more than suspicious. The cultures will be ready to examine and transplant on various differential culture media by the next morning. By the second day these latter cultures will be ready for examination. Usually by this time, or shortly after, the animal (if the plague bacillus is present) is either dead or very ill, and now an absolute diagnosis can be made. This method I used many times, and in *every instance* in which the direct coverslip examination showed large numbers of short, thick bacilli, which decolorized by Gram, the subsequent history of the case, the cultures, and the inoculations of animals proved the case to be one of bubonic plague.

The above applies to the bubonic type which was the type that prevailed in the great majority of the cases which occurred in Manila. In the pulmonic type the plague bacilli occur in enormous numbers in the bloody expectoration, and are readily recognized on direct coverslip examination of the expectoration.

Sometimes bubonic plague is ushered in with a sudden chill, followed by a fever simulating closely a malarial attack. The examination of the blood in these cases fails to reveal the malarial parasite, and the blood shows a *marked leucocytosis early*. This would arouse suspicion of a septic process of some kind, and direct the observer to look carefully for a cause of the leucocytosis.

I was enabled to detect a case of plague in a very early stage, occurring in the walled city close to the army headquarters, by having my attention directed by the *blood examination* for the *malaria* and finding this condition, that is, absence of malarial parasites and presence of marked leucocytosis. This man died two days later at the plague hospital, and at the autopsy the case was found to be a very acute case of bubonic plague.

GENERAL REMARKS ON THE MANILA CASES.

There were recognized from January 1 to June 30, 1900, in Manila, 225 cases of bubonic plague, with 167 deaths, which equals a mortality of 74%. Of this number of cases of plague 160 were Chinese, with 115 deaths; 63 natives, with 15 deaths; and 2 Americans, with 1 death. It is rather surprising to find the death rate higher in the cases among the natives than among the Chinese. The native death rate in this series is nearly 81%, while the Chinese is not quite 72%. When the surroundings are considered, and manner of living, it would be expected that the Chinese would present a much higher percentage of fatality than the Filipinos. I am at a loss to account for this higher mortality among the natives in Manila.

There were no cases of plague discovered among the Spanish or foreign residents of Manila, and but 2 among the Americans. These 2 cases were in civil employees of the Quartermaster's Department of the Army, who were employed at Hall's *Corral* in Manila. One of these men died, and the other recovered after a moderately severe attack.

Mode of infection. — It was noted that the *right* femoral and *right* inguinal glands were

usually the first glands to enlarge. In considerably over one half of all cases these glands were enlarged first. The right femoral and inguinal glands were primarily enlarged nearly three times as often as the corresponding glands on the left side. It was unusual to be able to locate any fresh wounds of the extremity which appeared to be the point of entry of the infection. It was very common, however, to find skin lesions involving legs and thighs. Dhobie itch (so called) is very common among the natives, and the crotch is a favorite site for this infection. There is the possibility of introduction of the plague bacilli through infection of these areas (in which the epidermis is broken) by scratching. (As most people are right-handed, it may be possible that they are more inclined to scratch the right thigh than the left.)

It would be of interest to know if in other epidemics the right inguinal glands were *primarily* involved as frequently as in those cases which we studied in the Manila epidemic. Fleas and mosquitoes are always abundant in the Philippine Islands. Almost all cases of plague which came to autopsy showed evidence of bites by these pests. The possibility of the spread of plague by insects has been shown by the Japanese and other observers. It does not seem probable that mosquitoes play any part in the dissemination of the plague.

Objection has been made by some to the puncture of a plague gland with the hypodermic needle. These observers claim there is danger of causing general infection by this method from rupture or injury of a blood vessel, which would allow the plague bacilli to enter vessel and, by it, the general circulation. I think that this objection to the use of the aspiration method for diagnostic purposes is based more on theoretical than on practical grounds. I believe it much *safer* for both the patient and operator than the incision method as advocated by some.

Clinical Department.

A CASE OF RETROPERITONEAL LYMPHANGIOSARCOMA; OPERATION; RECOVERY — NO RECURRENCE AFTER TWO YEARS.[1]

BY T. B. LUND, M. D., BOSTON.

ON February 13, 1899, I saw, in consultation with Dr. W. T. Patch, of Boston, G. W. B., a salesman, fifty-eight years of age, who had been obliged to give up his work by an attack of influenza in December, 1898. The attack of influenza had left him weak and miserable and he had, during January, 1899, suffered from pain in the epigastrium, extending into the left side and back. Two weeks before I saw him he had a sudden attack of pain in the epigastrium, with vomiting. His bowels had been very loose during his illness, and his movements occasionally tinged with blood. He thought he had lost eighteen to twenty pounds in the last two months. His only previous illness had been an attack of typhoid fever eight years ago, and he was in good health when attacked by influenza.

We found him in bed at his home, a rather florid, flabby-looking man, with a temperature of 99.4°, pulse 80, and of fair strength, lips and extremities rather blue. His abdomen was lax, tympanitic, and not markedly tender. In the left lumbar and hypochondriac regions, extending inward as far as the median line, was a rounded, fluctuating tumor, larger in size than a fetal head at term. The tumor, from its location, suggested a tumor of the left kidney, and its fluctuation suggested a hydronephrosis. Such a diagnosis also was consistent with its recent appearance and unusually rapid growth. Mr. B. was brought to the City Hospital, and rested comfortably in bed for a few days, having no pain, and a normal pulse and temperature. The urine showed no albumin or evidence of renal disease.

On February 18th he was given ether, and by means of the Harris urine separator an attempt was made to obtain the urine from each kidney. The specimens obtained from each side of the instrument varied only in that one contained a larger percentage of urea than the other. Pressure upon the tumor seemed to cause a faster flow of urine from the left side of the instrument. The tumor, repeatedly aspirated through the loin, gave no fluid except a few drops of blood.

Under the circumstances it was thought best to perform an exploratory operation and deal with the tumor according to the conditions as found. The means so far employed had not sufficed to clear up the diagnosis, but had rendered that of hydronephrosis improbable, and that of a tumor of the kidney, which would seem from its soft consistency and rapid growth to be malignant in character, more probable. Therefore on February 23, 1899, the patient was again etherized, placed on the right side with the body flexed over a sand bag, and an incision was made from the tip of the twelfth rib to the crest of the ilium, parallel to the outer border of the erector spinæ. After incising the transversalis fascia, there was found in the retroperitoneal space, apparently below the kidney, the surface of a large, fluctuating tumor, which consisted of a fibrous sac, over the surface of which were spread several very large veins, running in a direction parallel to the spine. Aspiration of the tumor yielding only a few drops of blood, an incision was made into the sac, and it was found to contain a soft, dark-red, malignant-looking material, having the appearance and consistency of currant jelly. The incision was then enlarged sufficiently to admit the hand, and a very large quantity, more than a quart, of this red, jelly-like material removed with the hand and a large curette from the interior of the sac, which appeared to extend upward and forward in front of the kidney. There was considerable hemorrhage from the interior of the sac, and the patient col-

[1] Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1901.

lapsed and became pulseless, so that it was evidently impracticable to attempt to remove the sac, which was therefore washed out, rapidly packed with several strips of iodoform gauze, and the wound partially sutured. Subcutaneous infusion of normal salt solution was then performed, and under this, and stimulants given subcutaneously and by the rectum, the patient gradually came up, and by evening had a pulse of 140. During the next few days he did well, and the course of the wound was aseptic. The pathologist's report, by Dr. F. B. Mallory, was as follows:

Microscopically the tumor is very cellular. It is largely made up of long, narrow, branching canals or spaces, lined for the most part with low, flattened cells; in places, however, the cells are taller and approach the cuboidal shape. The canals contain an almost perfectly homogeneous material. In parts of the tumor the cells are packed very closely together, so that little or no evidence of spaces can be made out, and the cells assume more or less of a spindle shape. The connective tissue stroma is slight in amount, but contains many dilated lymph spaces, which, like the canals first mentioned, contain a homogeneous material, and in places many lymphoid and plasma cells.

Diagnosis.— Lymphangiosarcoma, or perhaps better, lymphangio-endothelioma.

We had here to do with a tumor of which the rapid growth, the vascular appearance of the covering sac, the macroscopical appearance, and the microscopical examination confirmed the diagnosis of malignancy. It was also in the highest degree probable that we had not accomplished its complete removal, both because we had not excised the fibrous sac, and had perhaps left some fragments of the jelly-like contents adherent to the interior of the sac. Therefore, in view of the probability of recurrence, it was determined to try the erysipelas and prodigiosus toxins of Coley. On March 14th, the patient being in fair condition, and the wound reduced to a clean granulating sinus with slight serous discharge, 1 minim of the serum was given. It was gradually increased to 10 minims, but on April 14th, as the patient, who had developed a right femoral phlebitis, had a slight cough and pain in the chest, seemed in a critical condition, and as several small abscesses had developed at the site of the injections, it was deemed wiser to discontinue the administration of the toxins.

After this the patient made a gradual recovery, left the hospital on April 24th, and after spending the summer in western New York, returned to Boston restored to health, and resumed his employment as a salesman in one of the large department stores. He has been regularly engaged in his employment since, has gained markedly in weight and strength, and suffers only from swelling of the right leg, which is undoubtedly one of the results of the phlebitis which followed the operation. There is no evidence of the recurrence of the tumor at the present date, two years after the operation.

The case is reported on account of the rarity with which a tumor of malignant macroscopical and microscopical appearance is cured by operation, and goes to show that all tumors of malignant appearance and rapid growth are not, at least, actively malignant. It does not seem to me probable that the treatment by the mixed toxins had anything to do with the non-recurrence in this case, as, owing to its apparent bad effect upon the patient's general condition, the toxins were given only in small amounts and for a comparatively short time.

VOMITING OF PREGNANCY. — SUSPENSION OF PREGNANT UTERUS. — EXTRA-UTERINE PREGNANCY. — OPERATION FOR FIBROIDS.

REPORTED BY J. OSWALD VOGEL, M.D.,
From the Service of Frederick William Johnson, M.D.

CASE I. *Vomiting of Pregnancy.*—Nellie C., twenty-one, single. Entered the medical service of the Carney Hospital, September 28, 1900, with the following history: For the past four months has had poor appetite, with occasional nausea and belching after eating. Ten days ago the patient vomited in the morning and several times during the day. There was no blood in the vomitus. The vomiting has continued ever since, coming on both during the day and during the night. Has lost about 8 pounds, although the appetite is fair. Bowels constipated. Physical examination was negative throughout. The white count was 8,200. The urine was acid, of a specific gravity of 1,012; no albumin, no sugar. Since entrance the patient has vomited repeatedly, irrespective of time and feeding. No blood in vomitus; no pain; temperature and pulse normal; no epigastric pain or tenderness; no sign in breasts of pregnancy. Rectal feeding was ordered. By mouth oxalate of serium and bismuth subnitrate, and by the rectum $\frac{1}{3}$ grain of cocaine were given. No effect was produced on the vomiting.

October 3d. Dr. Johnson found the uterus enlarged and somewhat to the right side of the pelvis. Cervix soft; violet color of vagina well marked. The diagnosis of probable pregnancy was made.

October 6th. In spite of every variety of treatment, the vomiting still continued, everything taken by the mouth being promptly rejected. The patient first menstruated at fifteen. Regular every four weeks until she came to this country in November, 1899, when she did not menstruate for two months. Was then regular up to June, 1900, when she did not flow for six weeks. Was unwell in July and August; but has not flowed any since August 20.

October 11th. When etherized, a positive diagnosis of pregnancy was made. The cervix was slowly and carefully dilated to the width of an inch. Then the cervical canal was thoroughly painted with Churchill's tincture of iodine from external os to inside internal os.

October 12th. Some vomiting from the ether. On rectal feeding.

October 13th. Vomited once. Rectal feeding stopped. Semi-solid food given.

October 15th. Was put on house diet.

October 18th. No trouble in retaining all kinds

of food. The cathartic pill taken at night caused vomiting.

October 24th. No vomiting since the 18th. and no vomiting of food since the 15th. Discharged well.

This is the second case of the persistent vomiting of pregnancy relieved by this method of treatment by Dr. Johnson.

Case II. *Suspension of pregnant uterus.*— Mary F., twenty-eight, married. Entered Carney Hospital November 6th, and was operated on November 8, 1900. A diagnosis of three months' pregnancy complicated with an ovarian cyst was made by her family physician, Dr. G. N. P. Mead. An incision 4 inches long was made to the right of the median line, through the right rectus muscle. The intestines were found adherent to the posterior surface of the uterus on the left. A cyst of the right ovary with twisted pedicle was found adherent to the posterior surface of the uterus and to the rectum. This cyst was the size of an orange, and was filled with dark, inky-looking material, apparently due to hemorrhage from the cyst wall. In separating the adhesions, the cyst was ruptured. The sac with right tube was removed, the tube being dissected out of the horn of the uterus, as has been Dr. Johnson's custom for years. The uterus was the size of a three months' pregnancy. The left ovary, the size of a hen's egg, was so incorporated in the cyst wall that it appeared part of it, and it took some time to decide from which side the cyst grew. The diseased portion of the left ovary was removed, leaving a rim of apparently healthy ovarian tissue, which was sewed over and over with catgut. The uterus was then suspended, after Kelly's method, with two sutures of kangaroo tendon. A quart of normal salt solution was poured into the peritoneal cavity. The abdominal incision was closed (as has been Dr. Johnson's custom for years) layer by layer, with animal ligature material, except the skin, which was united with silkworm gut. The convalescence was uneventful, and she was discharged well twenty-three days after the operation. Pregnancy has continued up to the present day with no discomfort.

This case is reported on account of the unusual procedure of suspending the uterus three months pregnant, and on account of the complication which existed with the pregnancy.

Case III. *Extra-Uterine Pregnancy.* — A. N., thirty-three, married. No children. One abortion at four months, seven years ago. Menstruation began at sixteen; always regular; flows three days; uses but three napkins. No dysmenorrhea. Peritonitis lasting one month followed the abortion seven years ago. No leucorrhea. Menstruated last, November 24, 1900; flowed the usual amount; no pain. December 25, 1900, at 2 A. M., was suddenly taken with pain in the lower abdomen. The pain was not confined to either side, and lasted several hours. Returned in forty-eight hours very severely and lasted two hours. These pains returned, off and on, for several days, requiring the use of morphine. Was never entirely free from discomfort in the abdomen. Was kept quiet in bed from December 27, 1900. until she was removed to the hospital January 25, 1901.

January 6th. A dark, bloody discharge began from the vagina, and continued up to the time of the operation. Often soaked through three napkins a day.

Nausea and vomiting were present during the interval from December 27th to January 25th.

Examined January 25, 1901. There was a dark brown, non-offensive discharge from the vagina. Uterus enlarged and in good position. Fibroid at the fundus extending toward the right. Sensitive mass, with boggy feel, behind and to the right of the uterus. Temperature normal; pulse 90.

Operation. — Considerable tissue was curetted from inside the uterus. On opening the abdomen, the right tube was found dilated half way between its uterine and fimbriated ends to the size of a pullet's egg, and with lymph and partially organized blood around it, made a mass the size of a small orange. The tube was unruptured; the escape of blood had been from the fimbriated end. The right tube and ovary were removed, the tube being dissected out of the horn of the uterus in the usual way. The parietal peritoneum was thickened, considerably injected, and in places the intestines were adherent to it. The bladder was adherent to the intestines, the ileum and cecum adherent to each other and to the iliac fossa. The appendix was hypertrophied, covered with adhesions, and adherent to the cecum and to the gestation sac. The mesosalpinx was greatly thickened. On the left side there was old pelvic peritonitis. A fibroid the size of a goose egg was situated in the fundus. This was enucleated, and the opening in the uterus closed with catgut. The appendix was inverted into the cecum and the edges stitched over with over-and-over suture of plain catgut. The uterus was suspended after Dr. Kelly's method. A pint of normal saline solution was poured into the abdominal cavity, and the abdominal wall was sewed up in four layers. The patient made an uneventful recovery.

Case IV. *Operation for fibroids.* — After a long search, I can find but 2 cases similar to this one on record. One was reported by Dr. George H. Washburn, of Boston, and the other by Dr. Howard A. Kelly, of Baltimore. The unusual condition was due to the fact that the fibroids originated from the cervix and lower segment of the uterus. As they developed they grew downward into the pelvis, and as they filled this space they gradually pushed the uterus up, so that at the time of the operation in this case, it reached to the umbilicus, riding on the top of the mass, and reminding one of the howdah on the back of an elephant. In front and behind, the tubes, ovaries, round ligaments and uterus were visible and of normal size and appearance. From about the cervical junction a mass spread downward, filling the pelvis and containing forty-three separate fibroids.

E. W., thirty-three, married. Was curetted four years ago for hemorrhage. Menstruation is

regular every four weeks; but of late there has been an increase in both the duration and the quantity of the flow. There is severe dysmenorrhea, beginning two days before the flow. The pain is in the back and lower part of the abdomen, and continues throughout the flow. Between menstrual periods there is a constant backache, with sagging and dragging down. For five years the patient has been able to feel a hard mass in the lower part of the abdomen. Has never had any children. Feet swell at times. Urine normal. On vaginal examination a round, smooth mass was found filling the pelvis. No cervix could be found. An incision was made, in the usual way, to the right of the median line through the right rectus muscle, about six inches in length. No cervix could be found, nor was it seen at any time during the operation, it having been so drawn out and incorporated into the fibroids that it was indiscernible. Extending out on either side underneath the peritoneum were what appeared to be two large masses of fibroids filling the pelvis. The mass on the left extended into the left broad ligament to the pelvic wall. The blood supply to the uterus was completely shut off, then the large mass was enucleated posteriorly. This mass extended beneath the uterus over to the symphysis. Then another mass on the left, extending out to the pelvic wall, was enucleated. This was of the size of a large orange, was of a very soft consistency, and was made up of a great number of small tumors. After emptying the pelvis of fibroids, a hysterectomy was done. The wound was closed, layer by layer. The patient made an uninterrupted recovery.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY JAMES H. WRIGHT, M. D., BOSTON.
Director of the Clinico-Pathological Laboratory, Massachusetts General Hospital.

MALARIA AND MOSQUITOES.

THE Italian observer Grassi has recently stated that, as a result of his studies in Italy, the geographical distribution of malaria and certain species of anopheles are coincident, and that these species of mosquitoes are not found in non-malarious districts. He also states that this coincidence is probably true for other parts of the world. Celli [1] has recently denied these conclusions, for he found anopheles in healthy situations in Italy which had never been malarious. More recently Nuttall, Cobbett and Strangeways-Pigg [2] have published an elaborate study of this question, based upon observations in England. Although malaria has apparently disappeared from England, they find three species of anopheles, not only in districts which were formerly malarious, but also in places in which malaria has never been known. The conclusion of Grassi, therefore, that anopheles are not to be found in non-malarious districts, is abundantly disproven, and it further appears that the disappearance of malaria from England is not dependent upon the absence of anopheles.

The disappearance of malaria from England is considered by them as probably due to the following causes: (1) A reduction of the number of mosquitoes consequent upon the drainage of the land; (2) the reduction of the population in infected districts as the result of emigration about the time when malaria disappeared from England; (3) the use of quinine.

The first mentioned cause seems to the authors to have been chiefly operative. They are inclined to think that there may be another intermediary host for the malarial parasite besides man, and that this host may have become extinct in the lowlands where it is known that the fauna and flora have altered. As a further result of their observations they conclude that the numerical distribution of the anopheles is more important than their geographical distribution. The existence of anopheles in known malarious districts, they think, will explain the occasional occurrence of malaria in out-of-the-way places without making it necessary that malaria-bearing mosquitoes have been freshly imported, for under suitable conditions of temperature and the requisite number of anopheles, a malarious subject coming from other parts might well infect the local insects which in turn would spread the infection to healthy persons.

[1] Centralbt. f. Bakteriol. vol., xxviii, p. 534.
[2] Journal of Hygiene, vol. i, No. 1, January, 1901.

SARCOMA OF THE INTESTINE IN THE ILEOCECAL REGION.

Blaul [3] reports 2 cases of sarcoma in this situation, and summarizes 6 other cases which he has found in literature. All 8 cases were round cell sarcoma, with a relatively small amount of stroma. The tumor formations took the form of a marked thickening and infiltration of the intestinal wall, but without narrowing of the lumen of the intestine, except in 1 case. With the exception of this single case no symptoms of intestinal obstruction were observed.

The author points out that the absence of symptoms of obstruction may be of clinical significance in the differential diagnosis from carcinoma and tuberculosis. In the majority of cases the tumor ceases at the peritoneal surface, yet it may happen that this may be broken through and an enormous tumor development occur external to it. Adhesions to neighboring structures occur, but are not the rule. The production of metastases varies. In general it comes early, and may involve a great number of organs. The mesenteric and retroperitoneal lymphatic glands are usually the seat of secondary growths.

THE STRUCTURE OF CARCINOMA.

Peterson [4] thus summarizes his study of carcinoma of the skin by reconstruction methods and serial sections.

[3] Arch. Patholog. Anat. u. Physiol. u. Klin. Med. Bd. 162, H. 3.
[4] Verhandl. der deutsch patholog. Gesellsch. auf der 72 Versammlung deutsch. Naturforscher und Aerzte zu Aachen vom 16 to 22, September, 1900.

(1) The masses of epithelial cells of a carcinoma are continuous with one another, belonging to a single trunk from which in all directions branches and processes arise. The so-called cancer alveoli are nearly always sections of these processes. Isolated alveoli, that is, islands of epithelial cells altogether surrounded by connective tissue, are very rare. The discontinuity of growth of the epithelial cells, therefore, does not belong absolutely to the conception of carcinoma.

(2) With regard to the starting point of the neoplasm two forms may be differentiated; (*a*) The unicentric carcinoma; the growth of epithelial cells begins at a single point and spreads from this throughout the whole neighborhood and also to the neighboring epithelium. In this way microscopical pictures can easily arise which simulate an active growth of this neighboring epithelium. (*b*) The multicentric carcinoma; the epithelial cell growth begins at different points, and the different masses of epithelial cells become combined only secondarily. The separation of these two forms of carcinoma, which can only be made with difficulty by pure microscopical observation, can easily be made by means of the reconstruction method.

(3) The certain proof that multicentric carcinoma exist is a further strong confirmation for the belief that the first beginning of carcinoma is to be sought for in the epithelial cells and not in the connective tissue.

THE ETIOLOGY OF YELLOW FEVER.

Walter Reed and James Carroll[5] publish the results of an exhaustive study of the biological characters and pathogenesis of the bacillus X. of Sternberg, of the bacillus icteroides of Sanarelli and of the hog-cholera bacillus.

They appear to have settled beyond a doubt that the bacillus X. of Sternberg is not identical with the bacillus icteroides of Sanarelli. Their conclusions are as follows:

(1) Bacillus X. (Sternberg) belongs to the colon group.

(2) Bacillus icteroides (Sanarelli) is a member of the hog-cholera group.

(3) The various channels of infection, the duration, of the disease and the gross and microscopical lesions in mice, guinea pigs and rabbits are the same for bacillus icteroides and for the hog-cholera bacillus.

(4) The clinical symptoms and the lesions observed in dogs inoculated intravenously with bacillus icteroides are reproduced in these animals by infection with the hog-cholera bacillus.

(5) Bacillus icteroides when fed to the domestic pig causes fatal infection, accompanied by diphtheritic, necrotic and ulcerative lesions in the digestive tract, such as are seen in hogs when infected with the hog-cholera bacillus.

(6) This disease may be acquired by exposing swine in pens already infected with bacillus icteroides, or by feeding them with viscera of infected pigs.

(7) Guinea pigs may be immunized with sterilized cultures of bacillus icteroides from a fatal dose of the hog-cholera bacillus and *vice versa*.

(8) Rabbits may be rendered immune by gradually increasing doses of a living culture of bacillus icteroides of weak virulence from a fatal dose of a virulent culture of the hog-cholera bacillus.

(9) The sera of animals immunized with bacillus icteroides and with the hog-cholera bacillus, respectively, show a marked reciprocal agglutinative reaction.

(10) While the blood of yellow fever practically does not exercise an agglutinative reaction upon bacillus icteroides, the blood of hog cholera agglutinates this bacillus in a much more marked degree, thus pointing, we think, to the closer etiological relationship of this bacillus to hog cholera than to yellow fever.

In a later publication these same investigators, in conjunction with A. Agramonte and Jesse W. Lazear,[6] report that they failed to find bacillus icteroides either in the blood during life of 21 patients in various stages of yellow fever, or in cultures from the blood and organs at 11 autopsies of yellow fever patients.

As a result from the studies contained in these papers it seems very probable that the bacillus icteroides is not the cause of yellow fever, and that when it is observed in cases of yellow fever it is only a secondary invader.

In the second paper some very interesting observations are offered which strongly suggest that the mosquito may be the intermediate host for the infecting agent in yellow fever.

PRIMARY SARCOMA OF THE STOMACH.

Since Schlesinger, in 1897, published his analysis of of 36 cases of primary sarcoma of the stomach, which number included 33 cases in literature and 3 cases of his own, the number of recorded cases has increased to the neighborhood of 50.

W. Mintz,[7] in a gratifyingly short paper, reports an additional case, and gives a very readable summary of our present knowledge of this affection. He points out that the most frequently observed forms of sarcoma are lymphosarcoma and round cell sarcoma. These new growths do not occur in the form of projecting nodules, but assume the character of an infiltration and thickening of the stomach wall of varying extent. They are prone to form metastases in other organs.

The disease apparently is more frequent between the twentieth and thirty-fifth year. Men are more frequently attacked than women. In general the symptoms are those of cancer of the stomach, and in only a few cases has the proper diagnosis been made during life. In one of these the diagnosis was made by microscopical examination of a small particle obtained in the stomach washings. In the cases in which a chemical examination of the stomach contents was made, lactic acid was present, but hydrochloric acid absent. Mintz thinks that the starting-point of the sar-

[5] Journal of Experimental Medicine, vol. v, No. 3.

[6] Philadelphia Medical Journal, October 27, 1900.

[7] Berlin. Klin. Woch., 37 Jahrgang, No. 32.

coma in his case was the lymph-nodes which are normally present in the submucosa near the pylorus.

LATENT TUBERCULOSIS OF THE PLEURA.

The occurrence of small, circumscribed, fibrous nodules on the pleura is frequently observed at autopsies. The nature of these nodules has not received much attention at the hands of pathologists. They have been called miliary fibromata by some. Weigert, in 1883, pointed out that these nodules cannot be distinguished from old miliary tubercles of the pleura, but his paper has hitherto been the only careful treatment of the subject.

In a recent paper E. Hodenpyl[8] reports the results of his examination of the pleural surfaces in 131 autopsies apparently consecutive. The ages of the individuals varied from fourteen to ninety-two years. In 45 of the autopsies in which the lungs were free from tuberculosis, or in nearly 50% of all the cases, nodules were present, which he found, on careful histological examination, were undoubtedly of tubercular origin.

THE SPOROTHRIX OF SCHENCK IN SUBCUTANEOUS ABSCESSES.

L. Hektoen and C. F. Perkins[9] report a case of refractory subcutaneous abscesses of the arm, in the pus from which a fungus was found apparently identical with the sporothrix described by Schenck in 1898. The pathogenic effects upon experimental animals produced by this organism were in only a slight degree different from those which Schenck observed. The authors emphasize the point that in the lesions of the animals the organism appears only in the spore form, and does not develop the mycelial threads which it does in cultures. The histological lesions produced are necrosis and pus formation accompanied by development of granulation and fibrous tissue. The human lesions were not studied histologically.

THE ETIOLOGY OF ACUTE PANCREATITIS AND FAT NECROSIS.

E. L. Opie[10] offers a most plausible explanation of many cases of acute pancreatitis and fat necrosis. He considers that these conditions can be brought about by the lodgment of a gall stone in the common duct, near its lower extremity, by which the pancreatic duct would be obstructed. As soon as the pancreatic duct is thus totally obstructed, the damming up of the pancreatic secretion would be followed by its escape into the surrounding tissues, and consequent production of necrosis and various lesions in the pancreas itself. The invasion of intestinal micro-organisms would likewise easily occur, and they in turn would contribute to the necrotic and inflammatory process.

In order to bring about these results the obstruction of the bile duct and the pancreatic duct by the stone need not be long continued, but may be transient, so that the existence of signs of such an obstruction may be overlooked at the autopsies.

In support of this view of the origin of acute pancreatitis and of fat necrosis, he points out that in more than 30 cases of acute lesions in the pancreas and of fat necrosis in the parapancreatic fat tissue the coincidence of cholelithiasis has been observed. In 8 cases, including one case observed by himself, a gall stone was found either in the common duct near its orifice, or in the duodenum with evidence of recent passage from the gall duct. That the damming back of the secretions in the ducts of the pancreas may lead to fat necrosis, Opie has previously shown by experiments on cats.[11]

Opie calls attention to the fact that only one individual in three is without an excessory duct of the pancreas opening by a separate orifice into the duodenum, so that in the majority of individuals the obstruction of the main pancreatic duct, in the manner above indicated, would probably not be followed by lesions in and about the pancreas.

THE DEMONSTRATION OF TUBERCLE BACILLI IN SPUTUM AND URINE.

[12] G. Jochman proposes a method for increasing the numbers of tubercle bacilli in specimens of sputum and urine, so that they may be more readily demonstrated by microscopical examination.

The method for sputum consists in mixing 10 cubic centimetres of the sputum with 20 cubic centimetres of a special culture fluid and keeping the mixture in the incubator for twenty-four hours. At the end of this time 3 cubic centimetres of liquefied carbolic acid is added to the mixture and shaken until a milky emulsion is formed. A sediment is allowed to form and this is examined for tubercle bacilli.

For urine the usual amount required for obtaining a centrifugalized specimen is taken. After it has been centrifugalized the supernatent fluid is poured off from the sediment and replaced by some of the special fluid. The centrifuge tube is then placed in the incubator for twenty-four hours, after which the sediment is examined as usual for tubercle bacilli.

Jochman claims that by this method any tubercle bacilli that may be present in these fluids are greatly increased in number. The special fluid which he uses is essentially Hesse's culture medium for tubercle bacilli, minus the agar agar. It has the following composition: Nahrstoff Heyden, 5 grammes; sodium chloride, 5 grammes; glycerine, 30 cubic centimetres; sodium bicarbonate solution (28.6 to 100), 5 cubic centimetres; water, 1,000 cubic centimetres. The Nahrstoff Heyden is a proprietary preparation of the same class as somatose and other proteid trade products. The virtues of this fluid are due to the fact that the tubercle bacillus thrives better in it than do other bacteria.

In a later paper[13] Jochman advocates an acid

[8] Studies from the Department of Pathology from the College of Physicians and Surgeons of Columbia University for the year 1899-1900.
[9] Journal of Experimental Medicine, vol. v, No. 1, October, 1900.
[10] American Journal of Medical Sciences, January, 1901.
[11] Contributions to the Science of Medicine, dedicated by his pupils to William H. Welch, 1900.
[12] Hyg. Rundsch., October 15, 1900.
[13] Hyg. Rundsch., January 1, 1900.

rather than an alkaline reaction for the culture fluid. For the purpose of producing an acid reaction he recommends the addition of a 1% solution of lactic acid in the proportion of 10 drops to 50 cubic centimetres, or about 10 cubic centimetres to 1 litre.

PATHOGENIC BACTERIA IN MILK.

E. Klein[14] has made bacteriological examination of 100 samples of "country" milk. In 7 samples he proved conclusively the presence of the tubercle bacillus. This is a somewhat lower percentage than those obtained by other reliable observers whose percentages varied between 14% and over 71%. In one of the samples the diphtheria bacillus was present.

THE BACTERIAL SELF-PURIFICATION OF STREAMS.

E. O. Jordan,[15] from the results of his study of chemical and bacterial conditions of the Illinois River and its tributaries, concludes that sedimentation and exhaustion of the food supply by the bacteria themselves are the most potent factors in the disappearance of sewerage bacteria from river waters. He says that "it is noteworthy that all the instances recorded in literature, where a marked bacterial purification has been observed, are precisely those where the conditions have been most favorable for sedimentation."

[14] Journal of Hygiene, vol. 1, No. 1, January, 1901.
[15] Journal of Experimental Medicine, vol. v, No. 3.

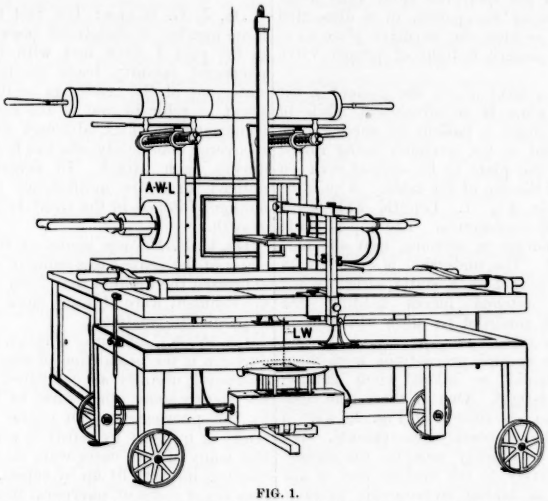

FIG. 1.
X-Light Examination Table. — Showing also Tube Holder and Stand; Coil and Supports for Photographic Plate Holder.

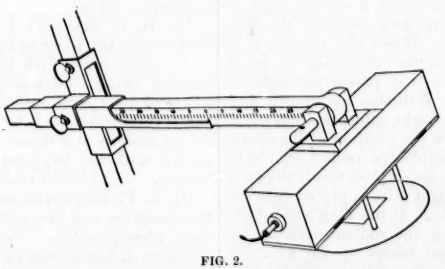

FIG. 2.
Graduated Arm of Tube Box.

New Instrument.

A TABLE FOR X-LIGHT EXAMINATIONS.

BY WILLIAM ROLLINS, BOSTON.

Dr. F. H. Williams has used for several years a stretcher on fixed supports. In the arrangement described in this note I have retained his stretcher, abandoning the fixed supports for several reasons:

(1) It is desirable to always stand in the same relation to the spark-gap and break handles, in order to control the wave length and intensity of the light without removing the eyes from the fluoroscope; moving the patient from right to left, or the reverse, to bring any part of his body under observation.

(2) It is important to be able to tip a patient; for example, in photographing stone in the bladder. If the patient is placed face down, with his head lower than his feet, the stone falls away from the shadow of the pelvis, in a distended bladder, coming so near the sensitive plate as to ensure a sharp picture, if light of proper wave length is used.

(3) In using a light above the patient a flat support for the plate is an advantage, while in placing a plate under a patient he need not be disturbed, one end of the stretcher being raised enough to allow the plate to be slipped between the stretcher and the top of the table. A suitable table is shown in Fig. 1. Length, 214 centimetres; width, 66 centimetres. The top is made of cross-glued veneers in sections, that any part may be removed. The underside is coated with aluminum paint to act as a static screen when grounded. The notched pieces holding the stretcher can be removed to allow the patient to lie flat on the table.

In my last note several precautions were mentioned which should be taken when making examinations by x-light. One of these, the non-radiable tube box, is shown in Fig. 1, with a stand having the necessary movements. We should be able to quickly measure the motion of the tube relatively to the median line of the patient, because in taking stereoscopic pictures or two photographs on the same plate, with the light in two different positions, a record must be kept. By graduating the arm carrying the tube box this is easily done. When the pointer is at zero the radiant area of the target should be in the same vertical plane that passes through the patient's medial line. Williams has shown that it is imperative for the right interpretation of an x-light negative to know the position of the source of light. As far as possible the record should be automatic. One way to accomplish this is shown in Fig. 1, at L.W. A straight wire is placed between the patient and the light. If the long axis of the wire is in line between the radiant area on the target and the plate, the image of the wire is a round dot. If in some other position, it shows as a line, whose length and direction give valuable information.

The authorities of Honolulu and the Hawaiian Islands, according to the *New York Medical Journal*, have determined that the recent great increase in the death rate from tuberculosis is due to the importation of the disease. A bill has been prepared and will be brought before the territorial legislature prohibiting the landing in the Hawaiian Islands of any person suffering from tuberculosis, or other contagious or infectious disease.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M. D., SECRETARY.

MEETING of May 15, 1900, the President, DR. ALFRED WORCESTER, in the chair.

DR. A. C. JELLY, by invitation, read a paper entitled

PUERPERAL INSANITY.[1]

DR. J. G. BLAKE: The fact that in the very large number of obstetrical cases I have attended in the past I have met with but very few of puerperal insanity, leads me to corroborate the statement of the reader as to its rarity. I was about to refer to one of the cases Dr. Jelly has mentioned, in which, although the patient finally recovered completely, she had to go to the hospital during each attack. In several cases I have noticed an entire indifference to the baby, the mother's interest in the child being of very slow growth.

DR. C. F. FOLSOM spoke of the probability of many of the acute cases being of septic origin, and expressed the opinion that fresh air and plenty of nourishment were of much more importance than hypnotics in treatment.

DR. W. N. BULLARD: I think a very important question is the proportion of cases that are really puerperal insanity as compared with those that are merely some other form of insanity induced by the puerperium. Of course if puerperal insanity is induced by sepsis it would be probable that many of such cases were merely cases of pre-existing insanity lit up by sepsis. While I have seen fewer cases of puerperal insanity in the last few years, I am somewhat skeptical about the part sepsis plays.

DR. H. E. MARION: I should like to ask the reader as to the fixity of the rule he has laid down as to interference with pregnancy on account of insanity being contra-indicated. I recently saw a case of puerperal insanity in which the patient had several times been forced to go to an asylum for six months at a time. I advised emptying the uterus, with the happiest results as regards the mother.

DR. J. P. REYNOLDS emphasized the rarity of the condition and the advantages of home treatment when possible.

DR. G. J. ENGELMANN: I can testify as to the ease and promptness with which the sometimes intense nervous disturbances of pregnancy can be checked by the induction of labor. I have not happened to see many cases following labor. I have been in the habit of thinking that the decreasing frequency of puerperal insanity is due to the improved technique of obstetrics — the earlier use of the forceps, etc.— rather than to improved technique in asepsis, by perhaps lessening the woman's dread and shock.

DR. ALFRED WORCESTER: I have myself had a very sad experience with the few cases I have

[1] See page 271 of the Journal.

seen, so much so that the advent of puerperal insanity seems one of the most dreadful things that can happen. I can recall five cases in about a thousand cases of obstetrics, and four of these five were fatal. None went to an asylum. One fatal case was suicide, she having previously killed her baby and another child. She had shown unmistakeable signs of insanity in previous confinements. I cannot help thinking that puerperal insanity is escaped only barely in many cases. I have often noticed symptoms that seemed to me threatening — cases in which everything else was favorable. When I see a woman becoming suspicious when such a thing is utterly foreign to her nature, or unwilling to see her children or husband, I think that it should be taken account of, and I always am at pains to separate such a mother from her family, and warn the nurses to keep the sharpest kind of a lookout. I can recall several cases in which the woman acted in a strange way in the first few days after labor, such as getting up and wandering about the house when not watched. I cannot but help feeling that it would be a disadvantage to lull our professional brothers into a feeling of overconfidence and security about puerperal insanity. I think increasing emphasis should be laid on the necessity of guarding in every possible way the mental processes of the mother during pregnancy and labor; the necessity of giving the mother complete physiological rest before and after confinement rests heavily on us.

To sum up, I feel that aside from all provoking causes there is in the physiological drain of pregnancy and confinement a large predisposing cause for mental lesions that should be carefully borne in mind. Two of my four fatal cases were very directly associated with albuminuria. I agree with the reader as to the desirability of keeping these cases at home, if the home can be turned into a hospital, but that can be done only rarely. I feel that when it comes to the question of artificial feeding, the patient is much better off in a hospital than at home.

Recent Literature.

An Introduction to Physiology. By William Townsend Porter, M.D., Associate Professor of Physiology in the Harvard Medical School. Cambridge, Mass. The University Press. 1900.

Dr. Porter's work must be regarded as a practical contribution to the solution of the very urgent problem of education in the medical sciences. Teachers of these branches in our best medical schools are agreed that it is necessary to bring the student into direct contact with the facts he is studying, so far as possible, and that purely didatic instruction must be reduced to a minimum. This does not present serious difficulties in gross and microscopic anatomy, in pathological anatomy, or in bacteriology; the laboratory technique is comparatively simple and the solution of the problem is merely a question of equipment and an adequate corps of assistants. With physiology the case is different; not only is the apparatus frequently complicated, but the conduct of the experiments themselves often demands an amount of time and technical skill which forbids their introduction into laboratory courses for beginners.

Dr. Porter recognizes this difficulty, and the work before us is his solution of the problem. In the preface he says: "Training in science means first of all the mastery of one field. In physiology the study of nerve and muscle is at present that best adapted to form the mind in habits of exact observation and clear reasoning. Schooled in this important part of physiology, the student can pass more rapidly and with greater understanding over the remaining parts. It is with nerve and muscle, therefore, that the Introduction to Physiology begins, and the treatment of this subject is made as thorough as is practicable."

In general this plan is exceedingly well executed in the work before us. The technique of the nerve-muscle preparation, of the electrical instruments employed in the experiments, and of the graphic method first receives attention. The physiology of nerve and muscle is then studied, as follows: Chapter IV, The Electrical Stimulation of Muscle and Nerve. Chapter V, Chemical and Mechanical Stimulation. Chapter VI, Irritability and Conductivity. Chapter VII, The Electromotive Phenomena of Muscle and Nerve. Chapter VIII, The Change in Form. Each of these subjects is studied by the experimental method, and it is not the least merit of Dr. Porter's book that it points out a practical method of doing this comprehensively and yet with "trustworthy and relatively inexpensive" apparatus. The student observes the facts for the most part for himself, while the explanatory text guides him to the correct understanding of what he observes. In the execution of this sound pedagogical principle the book is eminently and, we may almost say, surprisingly successful.

One point of criticism occurs to us, and that is the omission of all reference to the relation of active muscle and nerve to chemical and thermal change. Surely no one can be said to have mastered the physiology of muscle and nerve without understanding the chemical change involved, for this, with its liberation of kinetic energy, is the fundamental process which is the cause of the change in form, in temperature, and in electrical condition. The defect is all the more striking in the treatment of fatigue (pp. 232 foll.), which is confined to the study of the work done by the fatigued muscle, and makes no mention of waste products, etc. We cannot help thinking that practical laboratory acquaintance with these matters is of more importance to the beginner than many of the electro-motive phenomena which are quite fully considered. The value of the study of the muscle-nerve preparation lies partly in the fact that it is "that best adapted to form the mind in habits of exact observation and clear reason-

ing"; but it possesses even greater value in that it gives us the most convenient means of presenting to the student the action of a typical differentiated organ; and equal stress should be laid upon those features in which all differentiated organs are similar to that laid upon their points of difference. From this point of view the chemical and thermal changes cannot be neglected; if they are, one runs serious risk of leaving with the student the impression that muscle-nerve physiology consists in "making crooked lines on smoked paper."

Part II deals with the mechanics of the circulation and the innervation of the heart and blood-vessels, using the same methods of instruction as in the study of muscle and nerve, and with equally satisfactory results. Especially noteworthy is the efficient use made of the artificial scheme in studying the mechanism of the circulation.

The great value of a course such as that outlined in the present work is that it gives the student an adequate acquaintance with the methods of physiological investigation and enables him to study at first hand and with intelligent criticism other portions of the science. This must ever be of fundamental importance, the first object to be kept in view. The present work is, of course, not final; the next decade will surely see great improvements in our methods of teaching; laboratory work, for one thing, will be brought into more intimate relation with the study of the conditions which obtain in the normal and the diseased human body. Meanwhile Dr. Porter has earned our gratitude for what he has done to bring the student of physiology into more intimate personal acquaintance with physiological knowledge.

Practical Guide to the Public Health Acts (Eng.). By THOMAS WHITESIDE HIME, B.A., M.D. Second much enlarged edition. London: Baillière, Tindall & Cox. 1901.

This excellent handbook has been very much enlarged since the publication of the first edition in 1884. It contains those portions of the General Public Health Act of 1875 which especially concern medical officers of health and inspectors of nuisances, together with very many other sanitary acts down to date.

Still more valuable to sanitary authorities everywhere is that portion of the work which is entitled "Miscellaneous Memoranda of Importance to Medical Officers of Health." In this part of the book is collected a vast amount of practical information upon all subjects relating to public health, meteorology, vital statistics, inspection of meat, school hygiene, etc.

An appendix is also added containing decisions of the courts in 76 cases under the Health Acts.

MANUFACTURE OF ACETIC ACID.— According to the *Philadelphia Medical Journal* acetic acid is now made in Germany from the refuse material obtained from the sauerkraut factories. The enormously increased production will reduce the price of the acid to a merely nominal sum.

THE BOSTON

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283 WASHINGTON STREET, BOSTON, MASS.

THE REPORT OF THE ANESTHETICS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

THIS noteworthy contribution to our knowledge of the subject of anesthesia and the comparative value and safety of the various general anesthetics is the result of nine years' work on the part of a committee of twenty-one members of the British Medical Association, appointed in 1891, and having as members such worthy representatives of British surgery as Lord Lister, Professor McEwen and Professor Ogston. The committee was appointed "To investigate the clinical evidence with respect to the effect of anesthetics upon the human subject; and especially the relative safety of the various anesthetics, the best methods of administering them, and the best methods of restoring a patient in case of threatened death." The subcommittee to which this work was deputed, and of which Mr. Hutchinson was chairman, instituted an inquiry which extended over the year 1892 into all cases of the administration of anesthetics in the United Kingdom of which accurate notes could be obtained, and these records were carefully classified and subjected to a most exhaustive and critical analysis. Detailed reports were secured upon 25,920 cases, and the enormous amount of work required in the careful analysis of this enormous amount of material may be imagined. In 13,393 cases chloroform was the anesthetic; in 4,595, ether; in 2,071, nitrous oxide, followed by ether; in 678, A. C. E. mixture; in 418, mixtures of chloroform and ether in various proportions; in the remainder various combinations of chloroform followed by ether, gas and ether followed by chloroform, etc., but it would seem that every possible permutation of these anesthetics and their mixtures had been employed to make up the number of methods investigated to 45. Of the total number of cases analyzed, 25,163, or 97.169% are

classed as uncomplicated cases, or those in which, as far as the effects of the anesthetic are concerned, nothing unusual occurred. The percentage of uncomplicated cases of chloroform anesthesia was 96.73, and of ether 96.953. Of the complicated cases, in 68.57% of the ether cases and 45.2% of the chloroform cases the complications were of a minor character, and not such as to cause anxiety. Out of the 13,393 cases of chloroform anesthesia, 138 cases are classed as cases of danger, and of these 120 recovered and 18 died. The percentage of cases of danger to the total percentage of chloroform anesthesia was then 1.03. Of the 4,595 cases of ether anesthesia there were 14 cases of danger, and of these 8 recovered and 6 died. The percentage of "danger" cases was then to the total ether cases 0.304. This percentage was smaller than that of the various combinations and mixtures, in which, although in some the total number of cases was too small to make the statistics of value, the percentage of "danger" cases ranged from 0.338 to 4.347. There were 29 cases of death due or partly due to the anesthetic, of which 17 occurred under chloroform, 6 under ether, and 6 under other combinations and mixtures.

The analysis with reference to the time of year shows that the percentage of complicated and danger cases was slightly greater in the winter than in the summer months, and that this increase of danger was slightly greater in the case of ether than of chloroform.

The percentage of complicated cases in all anesthetics was greater in males than in females in the proportion of 1.477 to 1, and the percentage of danger cases in the ratio of 1.687 to 1. In males the percentage of danger cases under chloroform was nearly six times that under ether, while in females it was nearly twice the percentage under ether. In males the frequency of danger cases under chloroform was 1 to every 68 administrations; under ether, 1 to 406 administrations. In females under chloroform the danger cases were 1 in every 141 administrations, and under ether, 1 in every 251 administrations.

The analysis with reference to the condition of the patients at time of operation emphasizes the higher danger rate of chloroform in healthy patients. Adding together the cases in which chloroform was used alone or in mixture, a total is obtained of 10,199 patients in healthy condition with 73 cases of danger, or 0.716%. The danger rate in patients in good condition under ether was only 0.135%, or less than one-fifth as great. The exact figures for ether were 5,200 cases, with 7 cases of danger. In patients in poor or very bad condition the danger rate was still higher with chloroform than with ether, but not in so high a proportion.

The analysis of the various pathological conditions as affected by anesthetics brings out many interesting facts, to only a few of which we have space to refer. In valvular disease of the heart the only three cases of danger occurred under chloroform, giving a danger rate of 4.61% for this anesthetic in valvular disease. In tuberculosis, including phthisis, the general danger rate was diminished for all anesthetics, especially ether, while the danger rate for chloroform was less than half the general chloroform danger rate. "Anesthesia in pulmonary phthisis is remarkably free from complications and dangers throughout the whole of the record books." In bronchitis the liability to complications is largely increased, and the danger rate more than five times increased under chloroform. In empyema the general chloroform complication rate was high, but there were so few cases of this disease where other anesthetics were given as to offer no grounds for comparison. In alcoholism, chloroform was found more than eight times as dangerous as in the general run of cases, while in the 56 cases in which ether was employed there were no cases of danger.

To summarize the conclusions on pathological conditions: There was found increased liability to complications and dangers in patients suffering from emphysema, shock and collapse, alcoholism, affections of the heart, emaciation, empyema, bronchitis and anemia. Symptoms of danger were particularly prone to arise under chloroform in emphysema, shock and collapse, alcoholism, diseases of the heart, valvular and otherwise, and empyema.

Many more deductions of interest and value might be cited from this exhaustive and extremely thorough report, but space will only allow us the consideration of a few of the more interesting of the final conclusions of the committee, among which we may select the following as of especial interest:

(1) *Relative safety of the various anesthetics.* — The cases of danger under the chloroform group of anesthetics, considered to be entirely due to the anesthetic, were 88, or 0.584%. Under the ether group of anesthetics there were only 6, or 0.085%. Ether must, therefore, be accepted as the safest routine anesthetic, though certain circumstances connected with the nature of the operation, the state of the patient, etc., may make the use of some other anesthetic or combination safer and easier.

(2) *Methods of administration.* — No method of administration of chloroform is free from danger, but the occurrence of danger depends largely upon the administrator who follows any particular method.

(3) *Regarding chloroform and ether.* — In

conditions of good health chloroform is very much more dangerous than other anesthetics.

(4) When danger occurs under chloroform, there is abundant evidence that in a large proportion of cases the symptoms that are observed are those of primary circulatory failure.

(5) While respiratory complications are, as a whole, of equal frequency under the ether and chloroform groups respectively, yet those which occur under ether are, for the most part, of a trifling and transitory nature, while those that occur under chloroform are more grave and persistent.

(6) While vomiting is more common after administrations of ether, severe and prolonged vomiting is more common when chloroform has been used.

The above are only a few of the interesting and important conclusions arrived at by the committee, a report which may be said to have settled beyond peradventure the relative safety of ether as a routine anesthetic. It will be interesting to note whether it will have any effect upon British practice, or whether chloroform will still maintain its hold.

The results of this laborious clinical analysis and comparison tally very closely with those of physiological experiment, by which repeatedly the limit between the safe and toxic dose of ether was about seven times as great as in the case of chloroform, thus conclusively proving that the former was about seven times as safe an anesthetic for ordinary purposes.

THE STUDY OF ANATOMY.

WITH the growth of the special sciences, there is a clearly discernible tendency toward breadth rather than narrowness. The opponents of specialism would do well to observe this fact, when their pessimism becomes extreme. No sooner does a special branch of knowledge come to the attention of investigators than the full bearings of that branch must of necessity be considered, in determining its relation to the whole body of systematized science. This fact is sufficiently apparent in whatever direction we may turn for an example, but perhaps nowhere more marked than in the study of anatomy. At the outset anatomy was merely a matter of description, and as such might well be regarded as covering a limited field for the exercise of the higher intellectual powers. Later the microscope and the consequent study of tissues in detail, with all the broadening of knowledge which this implies, practically transformed the hitherto descriptive science of anatomy, and led indirectly to numerous relationships with embryology, comparative morphology and many more or less closely related fields of research.

All this means breadth and not narrowness. In fact we may, without looking very far below the surface, see everywhere, with the growth of special knowledge, an inevitable tendency toward a coalition with branches of knowledge often apparently only distantly related. Here, unquestionably, lies the safeguard of what is popularly spoken of as the danger of specialism. Dr. Lewellys F. Barker, of Chicago, in an address to the students of Rush Medical College, published in the *Journal of the American Medical Association*, does a distinct service to the cause of anatomy, by showing its far-reaching associations simply as a pure science. He concludes his remarks as follows: "I have tried to give you an idea of what the study of anatomy includes, viz.: descriptive or systematic anatomy — gross and microscopic — physiological, surgical and topographical anatomy; histology or general anatomy, including histography and cytology; comparative anatomy; embryology; comparative histology and embryology; histogenesis, and, lastly, experimental morphology. Assuredly the subject is wide. It is, I am sorry to say, too wide to be mastered in all its details even when a whole life-time is devoted exclusively to it. The scientific anatomist, after familiarizing himself with the main facts and principles of its various subdivisions, does best, in agreement with the great law of division of labor, to direct his efforts toward the acquisition and promulgation of knowledge in some one portion of it."

MEDICAL NOTES.

DEATHS IN HAVANA, CUBA, DURING FEBRUARY. — According to the vital statistics report from Havana, February 1901, with 408 deaths, is the best record for that month since trustworthy reports have been available. The minimum number was in 1893, with 446 deaths, and the maximum in 1898, with 1,602. This is not only less than any February since 1890, but actually less than any month of the preceding twelve years, the lowest in any month being 444 deaths, in November, 1900. The average for the ten years succeeding 1890 was 746 deaths.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 20, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 83, scarlatina 30, measles 79, typhoid fever 3.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending March 16th was 236, as against 341

the corresponding week last year, showing a decrease of 105 deaths, and making the death rate for the week 219. The deaths from consumption were 18; pneumonia, 48; whooping cough, 1; heart disease, 25; bronchitis, 9; marasmus, 2. There were 5 deaths from violent causes. The number of children who died under one year was 43; under 5 years, 77; persons more than sixty years, 61; deaths in public institutions, 54.

Great Improvement in Diphtheria Situation at Waltham, Mass. — During the months of October and November, 1900, there were a large number of cases of diphtheria in Waltham. Prompt measures were taken to crush the epidemic. Four physicians were appointed as medical inspectors of schools, but no schools were closed on account of diphtheria. Beside a rigid inspection at school of every pupil much work was done at the homes of those afflicted with the disease. In this way all sources of infection were located and a rigid quarantine maintained. This system proved a success, as shown by the present status of diphtheria in Waltham. The number of new cases has steadily diminished until on March 16th there are no Waltham patients in the diphtheria ward of the Waltham Hospital where for the last few months about two-thirds of the cases have been treated. Inquiry at the Board of Health office shows there are but two convalescing cases in the city at the present time.

Bequest for a Hospital at Newburyport, Mass. — William C. Todd has given the sum of $50,000 and a suitable building site at Newburyport for the erection of a well-equipped modern hospital. The present structure is insufficient to meet the demands made upon it. The new institution will retain the name Anna Jaques Hospital.

Course in Dentistry at Tufts College Extended to Four Years. — The Faculty of the Tufts College Dental School, at its last meeting, passed a unanimous vote to extend the course in that school to four years, the change to apply to all students entering the school in 1902 and thereafter.

A Proposed Hospital at Arlington, Mass. — It is reported that by the will of Stephen Symmes, a resident of Arlington, who died recently, the sum of $25,000 is left to found a hospital in that place.

NEW YORK.

Reversal of an Insurance Judgment. — The Appellate Term of the Supreme Court in the last week in February reversed a judgment for $369.30 obtained in the City Court by Patrick Meehan, a policeman, against a company in which he was insured against accident. The plaintiff lost his left eye and was otherwise injured by carbolic acid which, it was claimed, was thrown in his face by a woman named Marie Pfistler. He was confined in a hospital over ten weeks before he could resume duty. The company contended that, under the terms of the policy, it was not liable for "injuries, fatal or otherwise, resulting directly or indirectly from, or in any wise contributed to by, poison in any form or manner, or contact with poisonous substances." The plaintiff claimed that the policy referred to poison taken intentionally. Justice Blanchard, for the Court, stated that there was a great difference between the words "by taking poison" and "by poison." The former expression might very well be held to mean the internal use of poison, but the latter wording could not be so construed except by a forced construction. "The further contention of the plaintiff," the court said, "that by the subsequent words 'contact with poisonous subtances' is meant and intended voluntary and conscious action of the plaintiff, is likewise without force. In this case the meaning is clear and beyond doubt. The injuries occasioned to the plaintiff were occasioned 'by poison' or by 'contact with poisonous substances' within the meaning of the certificate." Mrs. Pfistler has been twice tried for assault, the jury disagreeing both times. Her story was that the acid was thrown at her by Meehan, and that while she was defending herself with an umbrella the acid was splattered over him.

Anesthetization as a Specialty. — At the monthly meeting of the Medical Association of the Greater City of New York, held March 11th, Dr. S. Ormond Goldan made a forcible plea in favor of anesthetization as a specialty, basing his argument particularly on the ground of the increased safety secured to the patient by having as an anesthetizer one specially skilled in the selection and administration of anesthetics and thoroughly prepared to meet any emergency that might occur. Dr. Goldan's position was fully endorsed by the president of the society, Dr. Robert F. Weir, who stated that while the deaths from ether were commonly placed at one in every 25,000 cases, there could be no question that the percentage was in reality considerable larger than this. He had looked up the records of the New York Hospital (an institution whose reputation, he thought, would compare favorably with others of its class), and found that since the first use of anesthetics there the deaths attributable to ether were about one in 3,000 cases.

Mortality for February. — During the month of February there was a very gratifying falling off in the mortality of the city, which represented an annual death rate of 19.92, against 25.15 in Janu-

ary. The death rate was also considerably smaller than that of February of last year, which was 23.84. In the last week of the month the rate was 27.28 in 1900 and 20.8 in 1901. The most marked decline was in the mortality from pneumonia, the weekly average of deaths from which decreased from 270 in January to 158.5 in February. The weekly average of deaths from influenza decreased from 88.75 to 51.75; from phthisis, from 179.75 to 173.5; from bronchitis, from 54.75 to 41.5; from diphtheria and croup, from 55.5 to 40.75; and from typhoid fever, from 13.5 to 9. On the other hand, the weekly average of deaths from scarlet fever increased from 18.5 to 27; measles, from 1.75 to 6.25; whooping-cough, from 3.25 to 4.5, and smallpox from 2.25 to 8. In the week ending March 2d there were 11 deaths from the last-named disease.

DESTRUCTION OF A SMALLPOX HOSPITAL. — On March 11th a mob, led presumably by the same persons as the preceding one, before mentioned, succeeded in destroying the temporary smallpox hospital at Orange, N. J., chopping it down with axes and hatchets. On the following night the ruins of the building were set on fire and entirely consumed. At a special meeting of the Common Council, called, on March 13th, on the application of the Board of Health, a communication was read from the Mayor, asking the Council to designate a place for the erection of a hospital for contagious diseases, and a resolution was adopted directing the committee on public health to confer with the authorities of East Orange, West Orange, and South Orange in regard to securing a permanent hospital of this character to be used in common by the various communities.

WATER SUPPLY OF NEW YORK. — There has been a good deal of talk about a shortage in the water supply of the city in the near future, but James R. Cross, President of the American Society of Civil Engineers, has just made the statement that there is plenty of water for New York for many years to come, provided the present waste is checked. He bases this opinion principally upon a comparison with Boston, Fall River and other cities, and on the examinations, measurements and observations recently made by John R. Freeman and himself. Roughly, about 61% of the water, he says, is wasted. Of this percentage about one-fifth is wasted by private consumers, and could be checked by the general use of meters. The remainder, or nearly 50% of the entire supply to the city, is wasted by leakage from the street mains and the house connections.

NEW NURSES' HOME FOR PRESBYTERIAN HOSPITAL. — Plans have been filed for a new nurses' home, to be erected for the Presbyterian Hospital on 71st Street, opposite the hospital buildings. It will be eight stories in height, and occupy a plot 124 by 102 feet. Several months ago an anonymous benefactor promised $300,000 for the erection of this building, provided the hospital authorities would assume the maintenance of it. When it is completed the capacity of the hospital will be materially increased, as the upper floors, which are now given up to living apartments for the corps of eighty-five nurses, will then be turned into additional medical and surgical wards.

THE C. R. AGNEW FUND. — In the thirty-first annual report of the Manhattan Eye and Ear Hospital it is announced that during the past year donations and bequests for the C. R. Agnew Memorial Fund have been received to the extent of $2,561, and that this fund now amounts to $24,217.

PROVISION FOR THE SICK POOR. — The Legislature has passed and Governor Odell has signed a bill authorizing town supervisors in counties where there are not adequate accommodations for the care of the sick poor to send such patients to the nearest hospital.

A PROLIFIC FAMILY. — Hester Forbes, who recently died at Waverley, N. Y., at the age of 94, left an extraordinary number of descendants. These are given as 146; namely, 10 children, 50 grandchildren, 72 great-grandchildren, and 14 great-great-grandchildren.

DOUBLE PENIS. — At the March meeting of the Surgical Section of the New York Academy Dr. Carl Beck presented a case of that very rare deformity, double penis; the subject was an infant of five months.

Miscellany.

THE DANGERS OF BOILED MILK.

IT is well, no doubt, says the *Medical Press*, to educate the public in the importance of avoiding the consumption of raw, *i.e.*, unboiled, milk, but it is also well to bear in mind that boiling does not impart to stale or partially-decomposed milk the health-giving properties of freshly-drawn milk. Boiling may sterilize milk so far as active, living organisms are concerned, but it does not rid the fluid of the toxins elaborated by them during their brief spell of life. The irritating effects sometimes observed to follow the ingestion of boiled milk are due, in part at any rate, to the presence of these products. There are, however, other changes to which boiled milk is liable. If raw milk be allowed to stand it turns sour, and the change is accompanied by the production of a certain quantity of gas. If milk which has been sterilized by Pasteurization or by heating to 70° C.

be subjected to the same treatment, the casein is precipitated as curds mixed with bubbles of gas, with a distinctly putrefactive odor. If the milk be boiled before being allowed to stand, the curds fall to the bottom without the formation of gas, and the albuminoid substances undergo gradual disintegration. In the case of raw milk lactic acid predominates; in Pasteurized milk the ferment is destroyed and replaced by gas-forming organisms, while in boiled milk the bacteria are destroyed and their place is taken by peptonizing organisms which elaborate products often of a toxic nature. To prevent this deleterious change it is recommended, when boiled milk is not for immediate consumption, a small quantity of raw milk should be added thereto.

THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

THE *British Medical Journal*, urging the necessity of an international catalogue, writes:

"One of the complaints which British men of science frequently make is that scientific work done and published in this country is often ignored by foreign investigators and writers. This is even the case with German writers, whose thoroughness in all such work is well known and recognized, and who have frequently laid science under great obligations by the compilation of the bibliographies of special subjects. It is not to be supposed that this failure to recognize work done and published in this country is due to any intention on the part of foreign writers to belittle British science. When attention has been called to such an omission, as it has often been our duty to do, the excuse invariably given is that the foreign writer had not found a reference to the particular research in any quarter accessible to him. The scheme of the International Catalogue of Scientific Literature, as to which we have on several occasions given particulars, is not a British scheme, but it was initiated by the Royal Society, and that body continues to take a leading part in the work. The volumes will, in fact, be published under its direction. There can be no doubt that this catalogue will in future be consulted by all serious workers in all parts of the world who are studying the literature of any subject; it therefore behooves British men of science, in the interest of science itself not less than in that of their own reputation, to take care that the papers which they contribute to scientific literature should be brought under the notice of the cataloguers. If this be not done, there will in the future be no good ground for complaint if publications are overlooked by foreign writers."

Professor Halliburton, writing in the same number of the *Journal*, says:

"The formation of an International Catalogue of Scientific Literature, which was initiated by the Royal Society, and has been the subject of several international conferences during the last few years, has at last been started, and cataloguing is in active progress. It is hoped that all papers published on and after January 1st of the present year will be indexed; the indexes will be two in number—an author index and a subject index. Each participating nation will be responsible for the indexing of the papers published in that country. A central bureau is to collect, co-ordinate, and publish the labors of the various national bureaus."

SUMMARY OF DEATHS IN BOSTON FOR THE YEARS 1899 AND 1900.

THE following statistics, published by order of the Board of Health, offer a comparison of the deaths and the causes for the years 1899 and 1900: Total number of deaths from all causes, in 1899, 11,167; in 1900, 11,678. Population, (estimated) 1899, 555,057; 1900 (census) 560,892. Annual death rate per 1,000 inhabitants, 1899, 20.12; 1900, 20.82. Total number from zymotic diseases, 1899, 1,444; 1900, 3,787. Percentage of deaths from zymotic diseases to total mortality, 1899, 12.93; 1900, 32.43. Total number of still-births, 1899, 539; 1900, 578. Total deaths of children under 1 year, 1899, 2,404; 1900, 2,410. Total deaths of children under 2 years, 1899, 3,034; 1900, 3,013. Total deaths of children under 5 years, 1899, 3,591; 1900, 3,752. Percentage of deaths under 5 years to total mortality, 1899, 32.15; 1900, 32.13. Total number of deaths from diarrhœal diseases, under 5 years, 1899, 329; 1900, 661. Total number of deaths from diarrhœal diseases, all ages, 1899, 396; 1900, 762. Percentage of deaths from diarrhœal diseases to total mortality, 1899, 3.54; 1900, 6.52. Cholera morbus, 1899, 16; 1900, 15. Cholera infantum, 1899, 280; 1900, 299. Cerebro spinal meningitis, 1899. 88; 1900, 66. Diarrhœa, 1899, 69; 1900, 442. Dysentry, 1899, 31; 1900, 6. Diphtheria and croup, 1899, 304; 1900, 537, Erysipelas, 1899, 42; 1900, 53. Influenza, 1899, 49; 1900, 215. Intermittent fever, 1899, 1; 1900. 6. Measles, 1899, 33; 1900, 88. Pulmonary, laryngeal and general tuberculosis, 1899, 1,236; 1900, 1,407. Puerperal fever, 1899, 11; 1900, 29. Pyemia and septicemia, 1899, 73; 1900, 100. Rheumatism, 1899, 17; 1900, 69. Scarlatina, 1899, 74; 1900, 181. Small-pox, 1899, 5; 1900, none. Syphilis (congenital), 1899, 22; 1900, 20. Syphilis, 1899, 5; 1900, 10. Typhoid fever, 1899, 165; 1900, 143. Typhus fever, 1899, none; 1900, none. Whooping cough, 1899, 76; 1900, 99. Yellow fever, 1899, none; 1900, none. Other zymotic diseases, 1899, 9; 1900, 2. Cancer, 1899, 402; 1900, 452. Bright's disease, 1899, 118; 1900, 142. Bronchitis, 1899, 393; 1900, 304. Heart disease, 1899, 966; 1900, 1,009. Pneumonia, 1899, 1,455; 1900, 1,241. Old age, 1899, 212; 1900, 315. Violent deaths, 1899, 620; 1900, 561. The increased number of deaths in the zymotic group in 1900 over that of 1899 is chiefly due to the incorporating into this group pulmonary, laryngeal and general tuberculosis with some form of diarrheal diseases.

METEOROLOGICAL RECORD.

For the week ending March 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....3	30.15	29	37	21	63	68	66	N.	S.	13	16	C.	O.	—
M...4	29.92	42	50	35	72	60	66	W.	W.	12	11	O.	O.	.22
T....5	29.63	34	45	22	89	60	74	W.	W.	7	12	O.	O.	.16
W..6	30.05	16	22	11	56	44	50	W.	W.	16	16	C.	C.	—
T....7	30.28	20	32	9	39	60	50	S.W.	S.W.	13	14	C.	C.	—
F...8	30.16	38	48	29	69	68	68	S.W.	S.	12	8	C.	O.	—
S....9	29.88	43	47	39	74		87	S.W.	W.	14	11	R.	R.	.30
☞	30.01		40	24			66							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 9, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1,434	450	22.37	17.98	2.23	.84	3.06
Chicago. . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	230	60	14.79	18.70	—	—	1.30
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	112	43	28.48	18.66	—	6.87	3.93
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	8	—	—	—	—	—	—
Providence .	175,597	64	22	15.60	26.52	—	1.56	1.56
Boston . . .	560,892	238	68	19.74	17.64	2.52	—	3.78
Worcester. .	118,421	46	15	10.85	28.21	—	2.17	2.17
Fall River. .	104,863	41	17	19.52	31.72	—	—	2.44
Lowell . . .	94,969	33	9	6.06	36.36	—	—	6.06
Cambridge .	91,886	17	8	17.64	11.76	—	—	5.88
Lynn. . . .	68,513	—	—	—	—	—	—	—
Lawrence . .	62,559	24	—	25.00	4.17	—	—	4.17
New Bedford.	62,442	34	11	26.46	23.52	—	—	2.94
Springfield .	62,059	15	2	26.68	13.34	—	—	—
Somerville .	61,643	22	5	13.65	18.20	—	—	—
Holyoke . .	45,712	—	—	—	—	—	—	—
Brockton . .	40,063	8	2	25.00	12.50	—	—	—
Haverhill . .	37,175	22	9	27.30	22.75	4.55	—	4.55
Salem . . .	35,956	14	2	14.28	21.42	—	—	7.14
Chelsea. . .	34,072	8	1	12.50	—	—	12.50	—
Malden. . .	33,664	16	4	18.75	18.75	—	—	—
Newton. . .	33,587	14	1	14.28	7.14	—	—	—
Fitchburg. .	31,531	11	4	18.00	45.45	—	9.08	9.08
Taunton . .	31,036	13	2	23.07	7.69	—	—	15.38
Gloucester .	26,121	8	2	37.50	12.50	12.50	—	—
Everett. . .	24,336	8	4	25.00	—	—	—	—
North Adams	24,200	8	3	—	—	—	—	—
Quincy . . .	23,899	7	2	28.56	14.28	—	—	14.28
Waltham . .	23,481	12	3	16.67	25.00	—	—	8.33
Pittsfield . .	21,766	9	—	45.45	22.22	—	—	22.22
Brookline . .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	11	5	18.18	18.18	—	—	9.09
Medford . .	18,244	7	1	14.28	14.28	—	—	—
Newburyport	14,478	9	2	—	33.33	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,525; under five years of age 769; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 523, acute lung diseases 468, consumption 285, diphtheria and croup 78, diarrheal diseases 44, scarlet fever 40, influenza 19, typhoid fever 23, whooping cough 11, measles 15, cerebro-spinal meningitis 5, smallpox 10.

From whooping cough, New York, 6, Pittsburg, 2, Boston, 2, Cambridge, 1.

From cerebro-spinal meningitis, Worcester, Haverhill, Gloucester, Everett and North Adams, 1 each. From scarlet fever, New York, 32, Boston, 6, Haverhill and Gloucester, 1 each. From typhoid fever, New York, 12, Pittsburg, 7, Providence, 1, Boston, Chelsea and Fitchburg, 1 each.

From measles, New York, 8, Pittsburg, 5, Boston, 2. From smallpox, New York, 10.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending February 23d, the death rate was 21.2. Deaths reported, 6,718; acute diseases of the respiratory organs, (London) 493, whooping cough 126, diphtheria 77, measles 94, fever 31, diarrhea 33, scarlet fever 26.

The death rates ranged from 11.7 in Burnley, to 27.3 in Liverpool, Birkenhead, 20.6, Birmingham, 25.5, Blackburn, 20.6, Bolton, 17.6, Bradford, 15.6, Brighton, 20.0, Bristol, 23.8, Cardiff, 20.3, Croyden, 14.7, Derby, 19.0, Gateshead, 17.2, Halifax, 20.5, Hull, 24.9, Leicester, 16.5, London, 20.8, Manchester, 26.2, Norwich, 25.1, Nottingham, 22.0, Plymouth, 36.7, Portsmouth, 18.1, Preston, 23.0, Salford, 25.4, Sheffield, 21.9, Sunderland, 22.4, Swansea, 22.4, Wolverhampton, 17.9.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 2, 1901.

PICKRELL, G., surgeon, detached from the Cavite Naval Station, and ordered to the Mare Island Navy Yard.

THOMPSON, J. C., assistant surgeon, detached from the Solace, and ordered home to wait orders.

WENTWORTH, A. R., surgeon, detached from the Independence, and ordered to the Solace.

CORDERIO, F. J. B., surgeon, detached from the New Orleans, and ordered home via the Buffalo.

STOKES, C. F., surgeon, detached from the Buffalo, and ordered to the New Orleans.

ROGERS, F., medical inspector, detached from recruiting duty, and ordered to the Asiatic Station as fleet surgeon.

PERSONS, R. C., medical inspector, detached from duty as fleet surgeon of the Asiatic Station, and home to wait orders.

RUSH, W. H., surgeon, retired, detached from the Pensacola Navy Yard, and ordered home.

SOCIETY NOTICES.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — The society will meet at the New York Academy of Medicine in the City of New York, May 30th, 31st, and June 1st, 1901.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, March 27, 1901, at 8 P. M.

Papers: Dr. Henry D. Chadwick, "Two Cases of Pregnancy, Complicated by Mitral Insufficiency."

Dr. E. W. Clap, "Albumeneric Retinitis and Amaurosis."

Dr. J. W. Dewis, "A Case of Congenital Pelvic Malposition of the Kidney."

W. H. GRANT, Secretary.
E. S. BOLAND, Chairman.

RECENT DEATH.

EDWARD BRADLEY, M.D., a prominent New York physician, died on March 15, of cardiac disease, at the age of sixty-five. He was born in Burlington, Vt., and was graduated from the Medical Department of the University of Vermont in 1859.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Twenty-fifth Annual Meeting of the Alumnae Association of the Woman's Medical College of Pennsylvania, May 17 and 18, 1900. Philadelphia: 1900.

The Students' Manual of Venereal Diseases. By F. R. Sturgis, M.D. Seventh edition, revised and in part rewritten by F. R. Sturgis, M.D., and Follen Cabot, M.D., Philadelphia: P. Blakiston's Son & Co. 1900.

A Treatise on the Diseases of the Ear: Including the Anatomy and Physiology of the Organ, together with the Treatment of the Affections of the Nose and Pharynx Which Conduce to Aural Disease. By T. Mark Hovell, F.R.C.S. (Edin.) M.R.C.S. (Eng.). Second edition. Philadelphia: P. Blakiston's Son and Co. 1901.

Affections Chirurgicales Du Fronc. Mamelles Organes Génitaux de la Femme. Statistique et Observations par le Docteur Polaillon. Paris. 1901.

Address.

THE EMBRYOLOGICAL BASIS OF PATHOLOGY.[1]

BY CHARLES SEGDWICK MINOT, LL.D.

EMBRYOLOGY is the basis upon which pathological science must be erected. Pathology is even more a superstructure upon embryology than is anatomy. Anatomy, in its descriptive form, may stand by itself and have usefulness. Pathology cannot be built up as a merely descriptive science. It fails of its true purpose unless it discovers the causes of diseases. Now, since function is dependent on structure, the aim of the pathologist must be, first, to discover the causes of morbid structure. In brief, pathology at the present time deals chiefly with problems of the development of anatomical forms. Pathology and embryology might almost be united in a single comprehensive study — morphogeny. Let us then try, for this evening at least, to free ourselves from the conception of an essential difference between normal and abnormal structure — a conception which, I believe, domineers too largely over our daily thoughts. This belief of mine I hope to justify tonight.

Simple description is indispensable, it furnishes the virgin facts; but facts do not develop by parthenogenesis into science; they must be saturated with the stimulus of study, with the stimulus of knowledge of their history, their antecedents, their causation; then we may see them evolving themselves into new orders, which we call natural laws. As little as a description of the people of the United States with no information as to their history could satisfy a serious thinker, so little can descriptions of fully developed structures satisfy an earnest pathologist. An innate, intense mental impulse is continually driving us forward in the search for causes, and obedience to this impulse is one of the main factors in scientific progress. All this is familiar, trite even, but may serve to fix our starting thought, namely, that we are to study causes.

Our attention is to be directed to the consideration of what embryology can teach us in regard to the causation of organization, and then to the application of those teachings to pathology. This plan will exclude from our discussion many of the aspects of embryology which appeal most strongly to pathologists. We must omit from our study at least three groups of interesting phenomena, to wit: (1) The arrests of development; (2) the teratological formations, monstrosities and misdevelopments, which will, however, have to be included ultimately even in the precise field we are about to study; (3) the so-called teratoma, or to use a more recent term, "embryoma." I may say in passing that I find it very difficult to accept the hypothesis that these remarkable structures arise by a parthenogenetic development of ova, retained in the parent body. Professor Bonnet's hypothesis is more legitimate, but towards that also my attitude is one of sceptical agnosis. Bonnet suggests that one of the early segmentation cells (blastomeres) may become isolated and retarded in its development, remaining as an inclusion in the fetal tissues, and afterwards develop and produce a variety of tissues, as isolated blastomeres have been shown by experiments on the lower animals to be capable of doing.

Teratological formations fall, it seems to me, naturally into three fairly definite divisions: (1) Those due to necrosis of the tissues, which apparently rarely if ever takes place uniformly throughout the embryo; (2) those due to gross mechanical disturbances of the development, consequent upon failure of the proper correlation of the growth of parts (monstrosities of this division are probably the most common); (3) errors in the differentiation of the tissue, or pathological histogenesis. It is only phenomena of the first and second divisions of teratology which we can safely drop from view, while those of the third division — errors in differentiation — we must bear uninterruptedly in mind.

One more preliminary explanation is necessary. The range of pathological changes is not so great as to reach equality with embryological developments. In the normal embryo we deal with the evolution of complete organs, together with all their accompanying varied and complex modifications of tissue. In pathology, on the contrary, we deal not with organs, but with modifications of tissues, with histogenesis. The statement will not seem too absolute if it is recalled that we have excluded arrests of development and monstrosities from our discussion.

Histogenesis is the common territory in which the pathologist and embryologist have — to borrow a legal phrase — an undivided interest. It is unfortunate that our tendency has so long been to attempt an unnatural and impossible partition of the territory, which has resulted only in a division of our forces into two camps, between which has reigned little interest and less sympathy. I venture to regard your invitation to address you tonight as a wish, which I fully share, to secure fuller co-operation between the two camps of workers, who are both striving to lay bare the laws which govern the differentiation of cells.

After these preliminary explanations it is possible to define the evening's task with precision. It is twofold: (1) To present some of the more important conceptions derived from embryological study in regard to the processes of cell differentiation; (2) to suggest some of the bearings of these conceptions on the problems of pathology.

PART I. NORMAL DIFFERENTIATION.

Under this head I propose to discuss three fundamental ideas: (1) Of the undifferentiated cell; (2) of the progress of differentiation; (3) of the changes which may succeed differentiation.

The fertilized ovum is an undifferentiated being, although it has a very complex organization, and

[1] The Middleton Goldsmith Lecture delivered before the New York Pathological Society, March 26, 1901.

contains, besides the protoplasm, a store of nutritive material, the so-called yolk or deutoplasm. As there is only one nucleus, there can be no variety of nuclei; the term "undifferentiated," therefore, applies to the protoplasm, which seems to have a uniform essential structure throughout, although the masses and strands of protoplasm may exhibit characteristic peculiarities, especially in relation to the distribution of the yolk. In the adult, on the contrary, the protoplasm of the cells of different tissues offers many varieties of essential structure, which can often be readily distinguished under the microscope. It is a legitimate conclusion that the absence of visible peculiarities of the intimate structure of the egg protoplasm, by which one part may be distinguished from another, corresponds to uniformity of structure throughout the egg—excepting, of course, certain special characteristic arrangements, as, for example, the centering about the centrosome, which may occur in any cell.

We have also direct experimental proof that the egg is uniform throughout, or to use a better phrase, that the egg is isotropic. Pflüger, in 1884, proved that the side of the frog's egg which normally develops into the ventral surface of the embryo can be made to develop into a perfectly typical dorsal surface. The frog's egg has a small white area, which normally lies underneath, the larger, darkly pigmented area of the egg alone showing from above. Out of the dark area the back, with the nervous system and other parts, takes its origin. If the eggs, freshly fertilized, are fastened with the white side up, then the white side produces an absolutely normal back and nervous system, normal as to form and function, though lacking the typical pigmentation. These observations were confirmed by Born, who further discovered that the segmentation nucleus always rises towards the upper side of the egg, and that the position of the necleus determines which part of the ovum shall become the dorsal side of the embryo. Another set of experiments by Oskar Schultze demonstrated that both the unpigmented and the pigmented sides of the same egg could be made to produce dorsal structures.

Another class of experiments, which were first made by Hans Driesch, have demonstrated that the earliest cells (segmentation spheres, blastomeres, or cleavage cells, as they are variously called) produced by the ovum preserve the undifferentiated qualities of the parent egg, and may develop in one way or another according to circumstances. The egg of a sea urchin divides into two cells, each of which multiplies and normally gives rise to half [2] of the body of the animal. By somewhat violent shaking the two cells may be artificially separated; each cell may then develop into a complete larval sea urchin, but of half the normal size only. Similar experiments have since been made by several investigators, who have obtained like results with other animals, vertebrate as well as invertebrate. Even more remarkable larvæ have been raised from blastomeres of the four-cell and eight-cell stages of segmentation, producing larvæ of one-fourth and one-eighth the normal size. Zoja claims to have repeated the experiment successfully on the eggs of Clytia and to have obtained one-sixteenth larvæ.

The facts offered suffice to illustrate the two aspects of our conception of the undifferentiated condition of living matter. The first aspect is morphological and presents to us the apparent uniformity of the visible minute structure of protoplasm. While we readily admit that the uniformity may be only apparent in the sense that we fail to observe fine differences, yet we none the less maintain that the uniformity is real, because there is an absence of variations of structure comparable to the variations which we can observe in the cells of adult tissues. The second aspect is physiological and offers to our view the wide range of possibilities in the future developmental history and growth of the protoplasm. The fate of the protoplasm of any given part of the ovum is not fixed, but if its conditions of development are changed its fate is changed. A few years ago the mosaic hypothesis was advanced by W. Roux, and it has been vigorously defended by him. According to the mosaic theory, the egg is a mosaic pattern, each member of which has its predestined history. It is fortunate for our comprehension of pathological processes that we are already able to say that Roux's hypothesis is erroneous.

We must start then with the right conception of the ovum, every part of the protoplasm of which is to be regarded as potentially capable of producing any or all of the tissues of the adult.

We turn next to the consideration of the progress of differentiation, in order to establish a second fundamental idea, namely, that it acts as a progressive restriction of the further development. Each successive stage of differentiation puts a narrower limitation upon the possibilities of further advance. Applied to pathology this law means that the range of possible pathological changes is determined not merely by the nature or kind, but also by the stage or degree of the previous differentiation of the tissue.

The eggs of all animals [3] pass through two well marked phases of development. During the earlier and much shorter phase, the nuclei are multiplying rapidly, while the cytoplasm is growing but little, if at all. This period includes the time of segmentation, as commonly described, and somewhat longer. During this period the total bulk of the nuclei in proportion to the protoplasm is fundamentally changed. The ovum arises from a cell, the ovocyte, which, as its last act, grows rapidly; this enlarged cell by the process of maturation gives rise to the female sexual element, which has a single nucleus. After fertilization we have an ovum with much protoplasm and deutoplasm, but again with only the single segmentation nucleus. The development of each individual begins, therefore, with a cell in which

[2] It would be safer to say supposedly about half.

[3] The protozoa are obviously excluded from the present discussion.

the extreme disproportion between the size of the nucleus and of the whole cell body occurs. The first effort of development is to correct this disproportion by the enormously rapid increase of the nuclei, which continues until cells of the embryonic type are produced, that is to say, cells each with a minimal amount of protoplasm around the nucleus. With the production of cells of the embryonic type, the first phase of development is completed. The limits of this phase are very indefinite, for we observe often that the production of cells of the type defined may be far advanced in one part of the germ, while it is still in early progress in another. In fact the phase has no exact boundary in time.

During the second, later and much longer period, or phase of development, the multiplication of nuclei lags behind the growth of the protoplasm, the increase is gradual and often shows itself through successive generations of cells, sometimes, however, in a single cell, which no longer multiplies. Of the first method of protoplasmic growth, embryonic blood cells offer a good illustration; of the second, the neuroblasts or young nerve cells afford a striking example. Now cells of the embryonic type show little if any capacity for differentiation, and the increase of the protoplasm in the single cell is, so far as we can judge, a necessary preliminary step to cell differentiation. The embryonic cells have yet another characteristic of basal significance — they are capable of rapid multiplication. Hence we conclude that the growth of the cytoplasm impedes the multiplication of cells, and therefore ultimately retards the growth of the body as a whole, while on the other hand it favors differentiation. Accordingly the growth of cells and their differentiation are essentially antagonistic processes, which are necessarily more or less mutually exclusive. This conclusion, which I published in 1890, has since been amply confirmed by further observation. It is probably applicable alike to animals and plants, alike to normal and to abnormal tissues. It is one of the many conclusions of embryology which are sure to throw a revealing light upon some of the dark problems of pathology.

During the first phase of development, as just defined, we encounter preparatory changes which we may characterize summarily as the manufacture of embryonic cells. During the second phase, though the production of embryonic cells is doubtless continued in certain regions, there supervenes the process of differentiation — the true histogenesis.

After segmentation there follows the formation of the germ layers, a gradual arrangement of the cells in three distinct primary strata; at least in all vertebrates there are always three strata, never more[4] nor less. The outer and inner layers, ectoderm and entoderm, very early become distinctly epithelial. The middle layers become partly epithelial, partly of a special character, that is, mesenchymal. At first one is inclined to think of the difference between epithelium and mesenchyma as a fundamental one, an early and unalterable separation of cells into classes. This view finds support in the fact that the mesenchyma, and it only, produces in the course of further development the connective tissue and supporting tissues of the adult. More attentive study of the germ layers in early stages reveals, however, that the mesenchymal cells arise from the epithelium; single epithelial cells migrating from the parent territory, while, on the other hand, groups of mesenchymal cells rearrange themselves so as to form an epithelial covering of some surface, as, for example, in synovial cavities, arachnoid spaces, the inner surface of the cornea, lymph vessels, etc. Such observations teach us that we must not assume that either one form or the arrangement of cells are necessarily and always a sign of true differentiation, but that instead we are to conceive of differentiation as a change in the intimate and essential structure of the individual cell, more specifically of its protoplasm, and perhaps of its nucleus. The rôle of nuclei in histogenesis is a topic which, unfortunately, is still awaiting serious investigation. To resume: It seems to me probable that the cells of the germ layers are at first quite indifferent, so that if it were possible to graft a young mesodermal cell on to the ectoderm or entoderm, it would become a true ectodermal or entodermal cell, as the case might be.

But although we may, so far as we now see, regard the cells in the germ layers as originally wholly indifferent as individual cells, nevertheless we must not forget that as members of a germ layer their potential fate is already restricted by the conditions of their very layership — if I may coin a word for the occasion. Each layer produces its own group of tissues, and never any other. There are indeed apparent exceptions to the rule, as, for example, the stratified, horny epithelium of the esophagus, which is strikingly similar to the epidermis, although in one case the tissue is ectodermal, in the other entodermal. We have, however, to do only with a resemblance, and the development in the two cases is quite unlike — the esophageal epithelium in the mammalian embryo being ciliated at one stage, and exhibiting then little resemblance to any stage of the epidermis.

Each germ layer has its specific function, its exclusive share in the work of differentiation. The work of one layer is not done by another nor shared by another. It is true that attempts are made from time to time to upset the validity of this fundamental doctrine, but they have hitherto failed to find support or recognition from any leading embryologist, and I deem these attempts unworthy of serious consideration. We are able now to assign almost every cell of the normal adult human body to its proper germ layer. Our only great uncertainty is where two layers meet, as do the ectoderm and entoderm in the pharynx, or as do the mesoderm and entoderm, where the ureter opens into the bladder. With these and

[4] Hartwig and some other German embryologists divide the mesoderm into two layers; the division is contrary to the actual development, and is made, in my opinion, quite arbitrarily to satisfy the needs of an erroneous theory.

perhaps a very few other small exceptions, everything in adult anatomy can be correctly stated in terms of germ layers. The layership of every organ is known, save that in the cases of the thymus gland, the tonsils and the adrenals authorities are not yet agreed.

A remarkable attempt to upset the doctrine of the germ layers deserves a brief consideration. It was first maintained by Goronowitch that the cells forming at least a part of the skeleton arose from the ectoderm. The same opinion was expressed also on the basis of their own investigations by H. Klaatsch and by Miss Platt. Confirmation of these views has not followed, but, on the contrary, C. Rabl, one of the most trustworthy of living observers, maintains that essential parts of Goronowitch's and Klaatsch's evidence are simply errors of observation. Klaatsch's views were based partly on the study of the developing teleost fins. R. G. Harrison has shown that here the German worker is in error. Miss Platt's observations were made in the head region of embryo Necturus. An examination of a number of series and stages has not enabled me to find the slightest evidence in favor of Miss Platt's conclusions. H. K. Corning has pointed out that the processes alleged by Miss Platt to occur in Necturus do not take place in the frog, *Rana temporaria*. We may, therefore, I think, safely regard this attempt to overthrow the morphological value of the germ layers as unsuccessful. I know of no other attempt of sufficient importance to be even mentioned.

The importance to pathologists of a thorough knowledge of the genesis of the tissues from their germ layers can hardly be emphasized too strongly, for it is more than probable that all pathological tissues are as strictly governed by the law of the specific value of germ layers as are the normal tissues. Are there not many pathologists whose knowledge of embryology is wholly insufficient to meet the practical needs of their professional study even in this one direction?

The accompanying table presents the principal tissues, classified according to their layership. There have been classifications of organs on the layership basis published before, but inasmuch as organs usually contain cells from two layers, we get a more correct presentation of the actual genetic relationships by restricting our tabulation to the tissues. Leucocytes do not appear in the table for the reason that their first origin is uncertain. Blood cells arise very early, before the clear separation of mesoderm and entoderm has occurred; it is possible that they are entodermal. With these two limitations, the table presents our present knowledge.

CLASSIFICATION OF THE TISSUES.

A. ECTODERMAL.
- (1) *Epidermis:*
  - (*a*) Epidermal appendages.
  - (*b*) Lens of eye.
- (2) *Epithelium of*
  - (*a*) Cornea.
  - (*b*) Olfactory chamber.
  - (*c*) Auditory organ.
  - (*d*) Mouth (oral glands, enamel organ, hypophysis).
  - (*e*) Anus.
  - (*f*) Chorion, fetal placenta.
  - (*g*) Amnion.
- (3) *Nervous System:*
  - (*a*) Brain: optic nerve, retina.
  - (*b*) Spinal cord.
  - (*c*) Ganglia.
  - (*d*) Neuraxons.

B. MESODERMAL.
- (1) *Mesothelium:*
  - (*a*) Epithelium of peritoneum, pericardium, pleura, urogenital organs.
  - (*b*) Striated muscles.
- (2) *Mesenchyma:*
  - (*a*) Connective tissue, smooth muscle, pseudo-endothelium, fat cells, pigment cells.
  - (*b*) Blood.
  - (*c*) Blood vessels.
  - (*d*) Lymphatics.
  - (*e*) Spleen.
  - (*f*) Supporting tissues, cartilage, bone.
  - (*g*) Marrow.

C. ENTODERMAL.
- (1) *Notochord.*
- (2) *Epithelium of*
  - (*a*) Digestive tract, esophagus, stomach, liver, pancreas, small intestine, yolk sack, large intestine, cecum, vermix, rectum, allantois (bladder).
  - (*b*) Pharynx, Eustachian tube, tonsils, thymus, parathyroids, thyroid.
  - (*c*) Respiratory tract, larynx, trachea, lungs.

We will now turn to the analysis of the differential process in each germ layer. We have to deal with changes in cells.

There are two distinct types of cell differentiation, which I think have not hitherto been clearly recognized or defined. For both types the starting point is the same — the undifferentiated embryonic cell. In one type we find that as the cells proliferate a portion of them only undergoes differentiation, and another portion remains more or less undifferentiated and retains more or less fully the power of continued proliferation. The epidermis is a good representative of this type. Its basal layer consists of embryonic cells, which multiply; some of these cells move into the upper layers, enlarge and differentiate themselves into horny cells; others remain in the basal layer and continue to multiply. The progeny of a given basal epidermal cell do not all have the same fate, but divide themselves into two kinds of cells, one kind retaining the ancestral character, the other becoming something new and unlike the parent cell. Differentiation according to the second type is characterized by its inclusion of all the cells. This type has its culminating and most perfect illustration in the central nervous system, where comparatively early in embryonic life all the cells become specialized, and with acquisition of specialization they forfeit their power of multiplication — the neuroglia cells partly, the nerve cells wholly. The growth of the brain after early stages depends not on the proliferation of cells, but chiefly upon the increase in size of the individual cell. The correctness of this statement is not af-

fected, in my belief, by the fact that epithelial portions of the medullary tube in comparatively late stages may be added to the nervous portion, the cells multiplying rapidly, as we see at the growing edge of the young cerebellum. The brain here grows by the addition of cells in the indifferent stage, but as soon as these cells are differentiated, they conform to the general law and divide no more (neurones) or slowly (glia cells).

The two types of differentiation produce essentially unlike conditions. The pathologist may not overlook such unlikeness with impunity. The two types pass into one another with many intergrades. Hence when we consider the possibilities of pathological alteration we must in each case seek to determine how far the condition of the tissue involved permits cell multiplication, as well as differentiation.

Just as the segmenting ovum divides itself into parts, which we name germ layers, each of which has its special and exclusive share in developing the adult tissues, so does each of the three germ layers divide into parts, each part having its special and inclusive rôle, and these parts again subdivide until, after the final partition, the adult variety is produced. During all these changes there is no exchange of rôles. It will be profitable to let the phenomena pass before us in rapid review.

First, then, the ectoderm. This layer early separates into two parts, one to form the central nervous system, the second the epidermis; the nervous part thereafter never forms epidermal structures, the epidermal part never forms a nervous system. The central nervous system retains in part a simple epithelial character, but most of its walls become nervous tissue; its cells pass from the indifferent stage and become neuroglia cells or young nerve cells (neuroblasts). Neuroglia cells never become anything else, and the nerve cells are always nerve cells to the end. The primitive epidermis forms a series of special sensory areas and the permanent epidermis. The sensory areas, which belong to the olfactory, auditory and gustatory organs, soon become well defined and never produce any cell arrangements like those of the epidermis. This last, on the contrary, remains, as before stated, rich in undifferentiated cells, and gradually produces a great variety of structures. Most of these, namely, the hairs and glands, are small and very numerous, while a few, like the nails, enamel organs and epithelium of the lips, are larger. No one of these special structures, however, converts itself into another. The basal layer of the general epidermis may perhaps preserve a true embryonic quality and have wide differential possibilities.

Next, as to the entoderm, which undergoes less differentiation than either of the other two germ layers, since over a large part of its extent it remains throughout life a simple epithelium with many cells very slightly modified in structure. Wherever in it specialization takes place, as in the tonsil, thymus, thyroid, esophagus, liver or pancreas, each territory of cells keeps its characteristics and never assumes those of another territory.

Finally, as to the mesoderm, in which layer variety of differentiation attains its maximum. To follow the genesis of this variety is most instructive. The mesoderm is found very early to include, in vertebrate embryos, four kinds of cells, of which the most numerous are undifferentiated cells, the other three kinds being, (1) endothelial cells of blood vessels, (2) blood cells, (3) sexual cells. All of these are precociously specialized; they are few in number, yet they are probably the parents of all the cells which are produced of their kind throughout life. Our present knowledge does not permit us to speak with entire certainty, but the evidence is strongly in favor of the following three conceptions: (1) That all the endothelium of the blood vessels of the adult is descended directly from the endothelium of the first blood vessels differentiated in the extra-embryonic portion of the germinal area. (2) That all the red blood corpuscles are descendants from the red blood cells of the blood islands of the area vasculosa. According to this view the blood-forming organs, as they are called, merely provide sites where the red cells can multiply, as for instance in the mammalian embryonic liver or in the adult marrow. (3) That the primitive sexual cells by their multiplication produce all the cells from which the genoblasts, or sexual elements proper, male and female, are evolved.

The future will decide the validity of these conceptions. They are very significant, because they assume that there are cells which form exclusive classes, and are characterized by a special combination of qualities, so that while they retain so much of the embryonic character as to have still the power of rapid multiplication, they yet are so specialized that they can only produce their like. If the three conceptions are established, we shall regard these three sorts of cells as almost the first to be fully differentiated. We shall also have to regard the vascular endothelium as distinct not only from the epithelial lining of the body cavity, but also from that of the lymphatic system. The immense importance of such a discovery, as bearing upon pathological researches and interpretations, is obvious.

The next important change in the mesoderm is the development of the main-body cavity, which the embryologist designates comprehensively as the cœlom. The cells, which lie next the body cavity and border it, assume an epithelial arrangement; this epithelial layer around the cœlom is properly named *mesothelium*, and the loose cells about it constitute the *mesenchyma*. We do not have, however, at first, a true differentiation of mesothelial and mesenchymal cells; all are undifferentiated, and we can readily demonstrate that the cells are interchangeable, differing during early stages by their positions in relation to one another and to the body cavity, but not differing in their essential structures or qualities. Thus we find that the mesothelium constantly gives off cells which join the mesenchyma, and we find later that

mesenchymal cells may take on an epithelial arrangement around any of the cavities—and there are many such—which arise within the mesenchyma itself in the course of further development.

But although difference of arrangement does not necessarily indicate differentiation of the cells it does affect the character of the differentiation which ensues. As every textbook states, the mesothelium gives rise to the striated muscles and to the epithelial portions of the entire genito-urinary tract, and is permanently retained, with slighter modifications, as the epithelium of the pericardium, pleuræ and peritoneum. The mesenchyma produces an even greater variety, since it is the parent of not only all the connective and supporting tissue, but also of the lymphatic system.

I venture to turn aside for a moment to urge upon you the adoption of the term "mesothelium" as the correct designation for the epithelial lining of the cavities of the thorax and abdomen. It is literally the same epithelium in the four cavities, for they were originally one with a single continuous epithelium. It is well also in our nomenclature to recognize the important fact that the epithelium is radically, because genetically, distinct from the endothelium of the blood vessels and lymphatics, and the application of the term "endothelium" to the covering of, for instance, the peritoneum, leads and can lead only to confused bad thinking. If mesothelium be employed as suggested, clearness will be gained.

Coming back now to the subject of the mesoderm, let us note that when a striated muscle fibre is produced a striated muscle fibre it always remains, and it never becomes anything else; the ovary never changes. In short, with the mesoderm, as with the ectoderm and entoderm, we see the fate of the cells once fixed to be thereafter unchangeable as to the kind of differentiation.

Our hasty review is worse than imperfect, yet is sufficient to impress upon us the great law that differentiation in any direction terminates the possibility of differentiation in any other direction. In accordance with this law we encounter no instances, either in normal or in pathological development, of the transformation of a cell of one kind of tissue into a cell of another kind of tissue, and further we encounter no instance of a differentiated cell being transformed back into an undifferentiated cell of the embryonic type with varied potentialities.

Thus far I have expressed myself somewhat as if there were two sharply defined conditions, the differentiated and the undifferentiated. To give such an impression would be to create error, since differentiation is a slowly progressive and wholly gradual change in the cell. We must look upon each step in the process of differentiation as establishing narrower limits for future changes. Thus, when in the spinal cord neuroblasts diverge from the glia cells, they are not specialized into different classes of neuroblasts; such specializaton comes later. So in the mesenchyma, after the embryonic cells have changed and large numbers of them have become connective tissue cells, these last still are capable of various further differentiations, and may, therefore, be said to have been arrested in their development at a stage of partial differentiation. This quality of the connective tissue cells is, from the pathological standpoint, one of the most important facts known to us concerning the structure of the body.

Having now elaborated, as far as time permits, our conception of the nature of differentiation, let us turn to our third fundamental idea, which concerns the changes which succeed differentiation. These changes are very unlike the constructive changes, which precede them, for they are destructive. They fall into three main groups: (1) Changes of direct cell death; (2) necrobiosis[5], or indirect cell death, preceded by changes in cell structure; (3) hypertrophic degeneration, or indirect cell death, preceded by growth and structural change of the cell.

Of direct cell death no discussion is here necessary, for the fundamental idea, which I wish to emphasize, is that necrobiosis and hypertrophic degeneration are normal processes, which invariably occur in the normal body and play, in many cases, important rôles in the life history of the individual. Without necrobiosis and degeneration on a large scale, the normal round of human life would be impossible. It is singular that in treatises on normal anatomy and histology these two subjects are generally neglected, or at most appear only as matters of incidental reference. The force of tradition makes us apply these terms as if they corresponded exclusively to pathological conditions. This tradition might still prescribe our mental attitude, were it not that the studies of the last dozen years have made us familiar with the enormous extent, variety and rapidity of the destructive degenerations which go on in the pregnant uterus of placental mammals, a degeneration which takes place without affording a trace or a suggestion of any pathological modification whatsoever of the organ. To our inherited prejudices the uterine phenomena alluded to are startling, but their evidence before the tribunal of biology has settled the case in favor of the plea that hypertrophic degeneration is a normal factor in typical healthy development.

The normal and pathological changes associated with the death of cells, and consequently also of the tissues which are formed by cells, are so nearly identical that they may be combined in a single discussion. For the more convenient presentation of the subject the following table has been prepared. Concerning the table, little explanation is necessary. A few special points need mention. The distinction made between necrobiosis and degeneration corresponds to recognizable differences, but our present knowledge is insufficient to provide clear definitions for the two closely related types of indirect cell death. I feel much doubt as to the propriety of including atrophy in the table at all, since it seems to me that we ought, perhaps, not to regard atrophy as a phenomenon of a distinct

[5] It is a matter for regret that so awkward a term as "necrobiosis" should have become current.

class, but merely as a result of necrobiotic or degenerative alterations in cells and organs. Under the heading "Degeneration" the division into "cytoplasmic" and "paraplasmic" takes us beyond our present knowledge, while the division "nuclear" is added rather to satisfy a biological conscience than to represent a part of our knowledge.

DEATH OF CELLS.

First. Causes of death.
- *A.* External to the organism:
  - (1) Physical, (mechanical, chemical, thermal, etc).
  - (2) Parasites.
- *B.* Changes in intercellular substances (probably primarily due to cells):
  - (1) Hypertrophy.
  - (2) Induration.
  - (3) Calcification.
  - (4) Amyloid degeneration (infiltration.)
- *C.* Changes inherent in cells:

Second. Morphological changes of dying cells.
- *A.* Direct death of cells:
  - (1) Atrophy.
  - (2) Disintegration and resorption.
- *B.* Indirect death of cells:
  - (1) Necrobiosis (structural change precedes final death).
  - (2) Hypertrophic degeneration (growth and structural change often with nuclear proliferation precede final death).

Third. Removal of cells.
- *A.* By mechanical means (sloughing or shedding).
- *B.* By chemical means (solution).
- *C.* By phagocytes.

The preceding table represents the only attempt of the kind known to me, and like other first attempts is undoubtedly very imperfect. It embodies obviously no new facts. But, because it is frequently a scientific gain to systematize our information, I hope the table may be useful, and it will certainly serve its immediate purpose, namely, to guide our discussion of the normal changes which follow after cellular differentiation.

As the time at our command is brief, let us pass by the consideration of the causes of cell death. I will remark only that I think amyloid degeneration may be found to occur in the placental decidua of the human pregnant uterus and perhaps in other normal structures. No positive information on this point is known to me. For the reasons stated a few minutes ago, atrophy may also be omitted here. We pass by also the direct forms of cell death, to reach at once the consideration of the indirect forms.

The accompanying table offers an analysis of some of the principal varieties of structural change, which occur during indirect cell death.

INDIRECT DEATH OF CELLS.

A. NECROBIOSIS.
- (1) *Cytoplasmic changes:*
  - (*a*) Granulation.
  - (*b*) Hyaline transformation.
  - (*c*) Imbibition.
  - (*d*) Desiccation.
  - (*e*) Clasmatosis.
- (2) *Nuclear changes:*
  - (*a*) Karyorhexis.
  - (*b*) Karyolysis.

B. HYPERTROPHIC DEGENERATION.
- (1) *Cytoplasmic:*[6]
  - (*a*) Granular.
  - (*b*) Cornifying.
  - (*c*) Hyaline.
- (2) *Paraplasmic:*[6]
  - (*a*) Fatty.
  - (*b*) Pigmentary.
  - (*c*) Mucoid.
  - (*d*) Colloid, etc.
- (3) *Nuclear* (increase of chromatine).

We begin, therefore, with necrobiosis. We may appropriately mention first those organs of which the existence is limited in time, such as the thymus and the fetal kidney (mesonephros or Wolffian body). These organs attain first their full differentiation; their elements during the next phase die off, and finally are resorbed, most of the organ disappearing. In the same category of change belong the histories of the senile ovary and testis. Another familiar illustration is offered by the notochord, which in the mammals totally disappears during the fetal period. The notochord cells undergo peculiar characteristic modifications, hence it is difficult to say whether or not there is degeneration in the strict sense. Cell death on a large scale is a common phenomenon of the tissues. It occurs in cartilage, both when the cartilage is permanent and even more conspicuously when cartilage gives way to bone, the disintegration of the cartilage cells preceding the irruption of the bone-forming tissues. It occurs among the bone cells after they are imbedded in their calcified matrix. It occurs in the ovary, where we designate its result as atresia of the follicles. It occurs in the sebaceous glands as an accompaniment of the process of their secretion. It occurs among the glands of the intestine, as discovered by Stöhr, and occurs normally, though not constantly, in the appendix, as recorded by Ribbert. It occurs in the epithelium of the human pregnant uterus and in all the tissues of the human decidua reflexa. Other examples could be enumerated, but we may content ourselves with citing the constant destruction of blood corpuscles, both red and white.

Degeneration, in the stricter sense of an antemortem hypertrophic change of cell structure, is also of widespread occurrence in the healthy body. No case of so-called granular degeneration under strictly normal conditions is known to me, though it seems quite credible that such cases should occur. On the other hand, the cornifying degeneration is very important, and does occur in all three germ layers, for we observe it in the ectoderm of the skin, the entoderm of the esophagus and the mesoderm of the vagina. Hyaline degeneration of so striking a character as to have been termed pseudopathological takes place regularly in the ectoderm (outer epithelium) of the placental chorion. In the rabbit it occurs in the uterine glands, during pregnancy, causing most rapid histolysis, and it seems to me probable that some of the changes, which can be observed in the

[6] I cannot venture to assert that these two divisions are valid, and not arbitrary.

decidua of the pregnant human uterus, ought also to be regarded as cases of hyaline degeneration. That fatty degeneration takes place normally has long been taught. There seems no reason for regarding the development of ordinary or mesenchymal fat cells otherwise than as instances of normal degeneration. In old age a more or less marked fatty degeneration may be widespread and occur in many different kinds of cells. The same is true of the deposit of pigment, as we see it in the liver cells and motor nerve cells of adults. Finally, mucoid and colloid degeneration are so obviously normal, that we commonly think of their pathological occurrence as merely an exaggeration of a normal state.

The various kinds of changes in dying cells, with which the pathologist is most familiar, recur in healthy tissues. In the preceding table seven forms of change are enumerated under the heading "Necrobiosis." Every one of these seven occur normally. Granulation of the bodies of the cartilage cells and of the notochord cells may be observed to precede their resorption. Hyaline transformation is conspicuous in the decidua reflexa. Imbibition or cellular œdema occurs in the epidermis of the lips, in the cells of the uterine glands during pregnancy, after they have detached themselves from the gland walls, and in the endothelium of the placental blood vessels of the rabbit. Desiccation is the usual accompaniment of cornification. Clasmatosis has given its name to the clasmatocytes of Ranvier, and we may well apply the same term to the cells of the secreting milk gland, and also, as an unpublished research indicates, to the cells of the secreting glands of the cervix uteri. Karyolysis is, according to present probabilities, the method by which nucleated red blood cells are converted into non-nucleated blood corpuscles. Karyorhexis, or the fragmentation of the nucleus, occurs in the cells of the disappearing follicles of the ovary.

Lastly, as to the removal of cells. The sloughing off of cells is one of the most familiar phenomena, since it occurs incessantly over the epidermis and with the hairs; its part in menstruation and its colossal rôle in the after-birth are known to all, and every practitioner is accustomed to look for shed cells in urinary sediment. Large numbers of cells are lost by the intestinal epithelium. Cells without access to the external world must be got rid of by resorption, which seems to take place either with or without the co-operation of leucocytes. In the latter case we must for lack of a better hypothesis attribute the resorption to chemical means. Of resorption with the aid of leucocytes the necrosed human decidua reflexa offers a perfect illustration. Of resorption without leucocytes the masses of degenerated epithelium in the placenta, periplacenta and obplacenta of the rabbit afford by far the most impressive demonstration I have ever seen. At nine days after conception the epithelium is profoundly changed, being very much thickened, and where thickened transformed into a syncytium without cell boundaries, but with an enormously increased number of nuclei. In the obplacenta (or portion of the uterine wall opposite the placenta proper) portions of the epithelium from the fundus of the glands remain, but the upper stratum has not only undergone syncytial degeneration, but has become vacuolated and partly resorbed without being directly attacked by either leucocytes or epithelium or any other kind of cells. At eleven days the resorption has progressed still farther, so that the degenerated part is almost gone, but meanwhile the isolated patches of epithelium have spread until they united and so reformed a continuous epithelium. At thirteen days the epithelium has reconstituted new glands or follicles, very unlike, however, those of the resting uterus. To explain the extraordinary rapid disappearance of the degenerated material in the obplacenta, the only available hypothesis seems to be that of a chemical change by which the material becomes soluble or is dissolved, for we see the disappearance of the substance taking place in the very heart of the layer, and not merely at the surface. Sloughing is impossible, and there are no phagocytes, leaving the chemical explanation as the only one I have been able to conceive. The contemplation of the described phenomena of the rabbit's obplacenta inevitably raises the question — do we not tend in our explanations of the removal of necrosed and degenerated tissues to attribute too much to phagocytes and too little to direct chemical action? May it not be that the body produces histolytic toxins, which can destroy tissues somewhat as do snake-poisons.

The cycle of changes through which cells pass is obviously longer than the period of development and the differentiation, yet its phases all belong together as members of a single series. We lack a word to designate the entire series of changes, and for the lack of such a word often fail to appreciate the essential unity of progressive and regressive modifications of cell-structure. Accordingly, I wish to propose the new term, "cytomorphosis," to designate comprehensively all the structural alterations which cells, or successive generations of cells, may undergo from the earliest undifferentiated stage to their final destruction.

PART II. PATHOLOGICAL DIFFERENTIATION.

We have now completed our brief reviews of the four fundamental successive stages of cytomorphosis. These stages are: (1) Undifferentiated; (2) progressive differentiation, which itself often comprises many successive stages; (3) regression (necrobiosis or degeneration); (4) removal of the dead material.

Let us now apply some of the conceptions won to the interpretation of pathological differentiation, remembering all the time that the interpretation of diseases is a distinct and different problem. Although presumably pathological differentiation is the sole and exclusive cause of disease, and no disease arises from any other immediate cause, yet the disease must be regarded as the result, and, owing to the physiological correlation of the organs, this result may include many sec-

ondary effects, some of which are often of the greatest diagnostic value, and therefore likely to divert attention from the primary structural cause.

Our review of normal conditions furnishes us with three general conceptions, which are valuable for their pathological applications, namely: (1) That each germ layer has a specific and exclusive share in the production of tissues; (2) that undifferentiated cells, characterized by having only a small amount of unspecialized protoplasm, exist not only in the embryo, but also throughout life in certain parts of all three germ layers; (3) that differentiated cells, characterized by having a larger amount of specialized protoplasm, form most of the organs of the adult, and are incapable of undergoing any new unlike differentiation, though they are still capable of completing their cytomorphosis, by necrobiosis or degeneration.

We must apply these conceptions, according to my belief, as rigidly to pathological as to normal development. Thus, as to the germ layers, it ought to be possible, even with our present knowledge, to show their pathogenetic values, so that every elementary student, as a matter of course, can be taught to classify accurately most pathological differentiations, and to accept such a classification as the basis of all his further study of the science. How much this reform is needed is indicated by the many writers who put glioma under the head of connective tissue tumors, although gliomata arise from the ectoderm, and connective tissue arises from the mesoderm. Such a classification is on a par with the ancient system, which put the whales among the fish, for it is not going too far to say it is impossible that connective tissue should produce a glioma, because the two things belong in different classes. Another noteworthy violation of embryological law is offered by the classification of all muscle tumors under one head, "myoma," although smooth and striated muscle fibres are genetically and structurally distinct, with no intermediate or connecting forms of tissue, and with only a slight physiological resemblance. As regards epitheliomata, they should be studied in relation to their layership; and it is reasonable, in my judgment, to expect that they will be found to have very distinctive characteristics, according to the germ layer from which they take origin, for the layership of a tissue governs the normal differentiation and therefore probably also the abnormal. I believe that the first competent investigation in this field will mark a new epoch of pathological science. When that epoch comes our morphological sense will no longer be shocked, as for instance by the application of the name adenoma to an epithelioma of an organ like the kidney, which is in no sense a gland.

I should like to urge especially the study of the layership of the various cancers. Can we safely assume that there is only one kind of cancer? May it not well be that ectodermal, mesothelial and entodermal cancers are separate kinds?

Next, as to undifferentiated cells. The cells of this sort have the power of multiplication in a high degree, and they have the possibilities of increasing their size and of undergoing further differentiation, and their occurrence in the adult is of the utmost pathological significance. Such cells exist in four important parts: (1) In the basal layer of the epidermis and in corresponding portions of the epidermal appendages; (2) in the adult mesenchyma or connective tissue; (3) in many parts of the adult mesothelium, especially of the epithelia of the genito-urinary tracts; (4) in the entodermal epithelium of the gastro-intestinal tract. It is significant that it is precisely from these parts that the development of many rapidly growing tumors takes place, and it is further significant that the least differentiated or specialized of all, namely, the mesenchymal cells, are the ones which produce the greatest variety of tumors, as the following list recalls: myxoma, myoma (but not rhabdomyoma), fibroma, lipoma, chondroma, osteoma and sarcoma. Angioma presumably belongs in a different category. The mesenchyma still exhibits, by the formation of its characteristic tumors in the adult, its embryonic capacity to transform itself in varied ways.

Further insight into pathological development may be gained from the tissues or cells which have undergone differentiation, but do not attain a high grade of specialization. The endothelium of blood vessels, the endothelium of lymph vessels, the red blood cells, the leucocytes, and the neuroglia are examples of this class. All the cells of the kind just enumerated have advanced in organization beyond the embryonic state, but have retained the power of cell multiplication. When they multiply they produce cells like themselves, so that we might describe them as so many histological species, each capable of reproducing its own kind. In accordance with this conception, derived from the normal development, is the pathological fact that each of these species of cells produces tumors of its own kind. This is a familiar conclusion as regards the endothelium, both of the blood vessels and of the lymph vessels, and also as regards the neuroglia. It seems to me that the excessive multiplication of leucocytes may properly be classed in the same category as the growths resulting in angioma and glioma. I do not know whether or not an excessive and abnormally rapid production of red blood cells may occur so as to occasion a special and distinct disease. Increased production of red blood cells (erythrocytes) is, of course, well known to occur, but I understand that a distinct disease of this origin is, as yet at least, not recognized. It is not improbable, however, that such a disease exists, — we should, I suppose, name it *erythrocytosis* or *hematoma*.

We can now distinguish two main groups of new formations: (1) Those with marked cytomorphosis, or change in cell structure, as, for example, myoma, lipoma, chondroma, etc.; (2) those without marked cytomorphosis, the cells of the new growth resembling those of the parent tissue, as for example, angioma and glioma. Members of

the first group have been termed *heteroplastic*. Members of the second group have been termed *homoplastic*.

Accepting these terms we may say tumors are either *heteroplastic* or *homoplastic*. From the standpoint of the embryologist these terms are much more than convenient adjectives; on the contrary, they denote differences of a fundamental character, upon which we must base a large part of our notions about pathological differentiation.

Finally, as to the differentiated cells. We have just considered cells which have reached a low degree of differentiation, and therefore will now give our attention only to the most highly differentiated. Of these the nerve cells, or, as they are now termed, the neurones, stand highest, and are characterized not only by the great specialization of their organization, but also by the complete loss of their ability to multiply by cell-division. The neurones are then extremely unlike the embryonic cells, and they represent the extreme end of that scale of which the undifferentiated cell is the beginning. It is, therefore, very significant that neurones do not form tumors. Neuronoma, as such a tumor would be called, does not occur, so far as hitherto recorded, and if, as is possible, a neuronoma should be found, we should have to explain it not as a tumor-growth of neurones, but as the result of proliferation of indifferent cells, which subsequently became differentiated into neurones. The so-called neuromata of pathologists do not here come into consideration because they are merely accumulations of growing axis cylinders.

Liver cells and striated muscles also represent a very high differentiation. It is possible that with more exact knowledge we shall be able to state that these elements also cannot produce tumors, although there may be tumors of the liver and of striated muscle fibres. Possible, because Cohnheim's famous theory of tumor origin from persistent embryonic tissue may be, though not generally applicable, yet available in these two instances. The adoption of this view would furnish an explanation of several familiar facts: of the fact that we do not find tumors formed by differentiated liver cells; of the fact that cancer of the liver arises usually from the bile ducts, which have a simple and little differentiated epithelium; of the fact that myoma of the cardiac and of the developed skeletal muscles is exceedingly rare; of the fact that rhabdomyomas so occur that their origin may be attributed to inclusions of portions of embryonic muscle plates. As regards primary epithelioma of the liver, it is claimed that it arises usually from the bile ducts, but the liver cells are also involved, but how it comes about that the liver cells participate is, so far as I have been able to learn, by no means clear. From analogy with other tissues, we infer that it is improbable that the large and specialized liver cells ever resume an embryonic character. In short, I deem our understanding of the pathological differentiation of hepatic cells and of striated muscle fibres too imperfect to support a judgment. We can only say that the rarity of such differentiation concords with the degree of normal specialization of the cells and fibres in question.

Our very brief discussion of pathological differentiation seems to justify the following conclusions: (1) The process in its essential features is identical with the process of normal differentiation; (2) the character of a tumor depends primarily upon the layership of the cells producing it; (3) normal differentiation impedes and limits the formation of tumors, precisely as it does of further normal structures, so that tumors arise most readily from undifferentiated tissues and may then be heteroplastic; arise less readily from differentiated tissues and are then always homoplastic; and arise unreadily or not at all from the most highly specialized tissues. Each of these three conclusions might be advanced as a law of normal development, if we substitute the term "differentiated tissue" for "tumor."

We now pass on to the final stages of cytomorphosis, necrobiosis and hypertrophic degeneration in their pathological manifestations. The consideration of the direct or simple death of cells need not detain us, nor need we pause long over the indirect forms of cell death. In fact, the analysis made earlier this evening, of normal necrobiosis and degeneration, forced us to recognize that all, or nearly all, the modes of indirect cell death which the pathologist encounters in morbid tissue recur under healthy normal conditions. To put the conclusion in its correct form, we need only to reverse it, saying: Most, and probably all, pathological necrobiosis and degenerations of cells are essentially identical with normal processes, and are pathological owing to the abnormality of their occurrence in time and site.

Death of a cell may, of course, occur at any moment as a consequence of conditions external to itself. To a given cell, as such, it is of no moment whether the term, "physiological" or "pathological" be applied by us to the conditions which cause its death. The cell has its own inherent qualities, and its own cytomorphic possibilities. All that the environment of the cell can do, so far as we can at present understand, is to evoke, and perhaps to a minor degree modify, one of the possible structural changes of the cell. Hence we find actually that the processes of cellular necrobiosis appear to us identical in normal and pathological cases. This affirmation does not imply that a given cell has only one kind of possible necrobiosis before it. Quite otherwise, it being reasonable to believe that any one of several forms of necrobiosis, according to the circumstances, may ensue.

All that has just been said might be repeated in reference to hypertrophic degeneration. One of the investigations which is most needed at the present time, and which promises results of extreme interest and importance, is the investigation of necrobiotic and degenerative cytomorphosis, carried out as a research upon cell structures. At present we cannot discuss the subject except

in terms the very vagueness of which is a mortifying confession of ignorance.

Time forbids the prolongation of the discussion. But, although a more detailed study is thus for the present excluded, we have, nevertheless, dealt with the subject with sufficient fullness, I hope, to convince you, if you were not already convinced, that the fundamental problems of pathology and embryology are alike, not only in being problems of cell life, but also in being similar and even identical problems of cell life. Widely as the two sciences differ, they rest on a common foundation.

To complete our subject it would be necessary to summarize our present knowledge as to the causes of cell differentiation. Physiological morphology is a new science; we have barely crossed its threshhold, and are not yet at home in it. To the physician this new science promises to far surpass in practical importance even the bacteriology of our time, since it is not presumptuous to hope that when we understand the physiological factors, thermal, chemical stimulant, mechanical and other, which bring about structure, which cause cytomorphosis — that then we can acquire control over cellular differentiation, and ultimately be able to prevent some of the most formidable diseases, over which we now have little or no power. The diseases which we may attack in the future, in this way, are diseases which may be designated as morphogenetic, because they are due to errors of morphological differentiation. At this vast topic it is quite impossible now to more than hint.

Here we may stop, not because all the great host of relations between embryology and pathology have been marshalled before us, but because enough of those relations have passed us in review to present a conclusive body of arguments. As we follow their march, we find ourselves led to the attack upon the problem of the causes of the specialization of cells, of histogenesis. To conquer this problem our only hope lies in the junction of all our forces.

Before closing, a personal word: First, of sincere thanks for the honor you have conferred upon me, both by your invitation and by your attention, and then a word to express the great diffidence with which I have undertaken to deal with pathological phenomena. A man of science ranks according to the number of details which he has mastered, and his ability to drill them into coherent battalions. By no such system of ranking can I hope to be included among pathologists. I offer, therefore, only the thoughts of an outsider, derived from the long pursuit of a cognate science. Such external suggestions, being independent to some degree of pathological tradition, may contribute to vivify the conception of the unity of the biological phenomena, and, therefore, of all forms of biological investigation. It will be a service rendered if my words recall the great truth that biology is not a congery of sciences, but a single science, which we artificially divide and sub-divide until the parts are commensurate with our mental capacity. In the truest sense we are fellow-workers. Let us, therefore, work together.

Original Article.

A NEW METHOD OF TREATING FRACTURES.[1]

BY LEONARD F. HATCH, M.D., LYNN, MASS.

When one stops to think of the rapid advance made in surgery during the past fifteen years, it seems little short of marvellous, and as though the wand of a magician had touched the art and shorn it of its crude and uncertain ways, and transformed it into the nearest approach to an exact science that we have in the whole field of the physician. Is it not remarkable that we have applied none of these new principles to the treatment of fractures? They are treated in the same indefinite and unscientific way that they were fifteen years ago, and have received none of the advantages of our recently acquired knowledge. The x-ray certainly has been brought to bear upon this field, but it is of comparatively little value. Does it show us the spiculæ of bone sticking into the soft parts? Does it show the fold of soft tissue caught between the two ends? Does it show the blood clots, the loose particles, and the ragged tissues that nature must take care of before union can commence? Does it obviate or tend to prevent in one particular the danger of non-union? I would not detract from the value of the x-ray, but merely contend that in the field of fractures it is of far more interest to the surgeon than of practical benefit to the patient.

Striving to establish a new method for the treatment of fractures, based on modern surgery, I have been severely hampered in applying and practically testing it by a lack of material, as it is very hard to get patients to permit a departure from established lines, and then, too, one has to be very sure of his theory before making a practical application of it, but I have been able to persuade a number to permit me to make use of it.

The principle (a part of it old but not followed generally, the other never having been used or advanced, to my knowledge) is to convert all compound fractures into simple ones; the other is to operate on simple fractures, making them compound, and then apply the first principle, making them simple.

I would submit a few cases bearing out these principles. I have had 6 cases of compound fracture of the large bones, besides a number of the small bones, which I have treated by making simple. I have operated on 4 simple fractures of the long bones and 5 fractures of the patella. All of these cases have given perfect results, without a drop of pus or any apparent inflammatory action. I have used drainage only once, and that was in the case of a compound fracture of the thigh. Fractures treated by this operative method are

[1] Read before the Lynn Medical Society, February 20, 1900.

practically devoid of pain. The sharp spiculæ of bone sticking into the soft parts and the swelling are the principle causes of pain, and both of these are avoided by the operation.

Technique of operation is the same for simple and compound fractures, with this exception, that in simple fracture there is a point of selection for the incision, while in a compound fracture the wound is simply enlarged. There must be the most perfect antiseptic preparation. The site of operation must be shaved and then scrubbed thoroughly with soap and water, bichloride solution, and permanganate and oxalic acid solutions; all other parts of the patient must be carefully covered with sterile sheets and towels. Hold the extremity in a vertical position for a few minutes, then apply a rubber constrictor. Fit a sterile posterior and anterior splint of any suitable material. The points of selection for incision are for the tibia along the crest, for the femur along the outer side of the thigh, for the radius behind the supinator longus, for the ulna along the ulnar side of the arm where the bone is most superficial, for the humerus along the outer side of the arm. A good, free incision should be made, as it is important to have plenty of room, and the size of the incision does not complicate the case. Wash out thoroughly all clots and débris, removing all shreds of soft tissue and loose pieces of bone. If any sharp points of bone prevent perfect coaptation, remove them. Remove rubber band. Tie all bleeding points, and be sure that the wound is dry. If in case of a compound fracture the periosteum is stripped up, carefully replace it. Secure perfect coaptation. Apply one of the splints before closing the wound, to make sure of holding the fragments in place. Close the wound with catgut sutures without drainage, and lay a thin pad of iodoform gauze over the wound; apply the second splint and bandage quite firmly, as there will not be any swelling like that which occurs after a fracture treated in the usual manner. Remove dressings on the seventh or eighth day and apply plaster cast or ambulatory splint, according to the requirements of the case. It is safe to discontinue splints at least one week earlier than in fractures treated by former methods.

CASE I. Mr. D. age forty-eight, weight 150 pounds, height 5 feet and 11 inches; general health good. In breaking a colt was thrown out and dragged a long distance, resulting in a compound fracture of the radius. Enlarged the opening and washed out bloodclots, etc. Found some difficulty in reducing fracture, but after removing a few spiculæ of bone it came together nicely. Closed wound without drainage. Removed dressings on sixth day and found a union of soft parts complete without pus. Applied plaster cast, which was removed on the twenty-fourth day. Union complete. No deformity.

CASE II. Mr. T. age forty-four, weight 180 pounds; general health good; truckman. In unloading a heavy desk slipped and fell, the desk falling upon his leg, causing a compound fracture of tibia. Made a good, free opening, and after cleansing out wound thoroughly, and securing perfect coaptation of fragments, I closed the wound without drainage. Dressings removed on seventh day, and found perfect union without pus. Applied ambulatory splint, which was removed on the thirtieth day. Union perfect, with no deformity.

CASE III. Mr. B, age forty, weight 230 pounds, height 5 feet and 10 1-2 inches; a hard drinker. Tipped over with a load of furniture, sustaining a compound fracture of the thigh at the middle, the bone protruding posteriorly. Enlarged the opening and cleansed the wound with a bichloride solution. Reduced the fracture and closed the wound, leaving silk drainage, as there was quite a little exudate. Applied splints with weight and pulley. Removed drainage without removing dressings at the end of twenty-four hours. Removed dressings on the eighth day; no pus; removed sutures. Recovery uneventful; there was no shortening. Dr. Bennett, who saw the case with me, advised amputation, and expressed the opinion that it was foolhardy to close up the wound.

CASE IV. Mr. J, age fifty, weight 145 pounds, height 5 feet and 10 inches; keeps a variety store. While putting up some flags on the top of a veranda for a Fourth of July celebration, fell to the ground, causing a compound fracture of the tibia. Enlarged the opening and cleaned out the wound thoroughly. After perfect reduction of fracture, closed wound without drainage. Dressings removed on seventh day, and found union of soft parts without pus. Applied ambulatory splint, which was removed at end of fourth week. Union complete, and no deformity.

CASE V. Mr. R., age fifty-two, weight 257 pounds, height 5 feet and 11 inches; foreman of the Lynn Water Works, was in a ditch when a heavy derrick fell on him, causing a compound fracture of the tibia and fibula of the right leg at the junction of the middle and lower thirds. The tibia penetrated his trousers and overalls, and was forced into the gravel. I enlarged the opening without an anesthetic, as the patient refused to take one, and cleansed the wound and the bone very carefully with bichloride solution, then carefully replacing the periosteum, which had been stripped up, I reduced the fracture, being sure of perfect apposition, and closed the wound without drainage. Removed the dressings on the seventh day; no pus, union of soft parts. Further recovery was uneventful. Union complete at end of fourth week; no deformity.

CASE VI. Mrs. B., age thirty-two, weight 145 pounds, height 5 feet and 8 inches; general health good. I operated on this case three years ago for double salpingitis. She was thrown from a carriage in a runaway accident at Wells Beach, Maine, striking a telegraph pole and sustaining a compound fracture of the radius and ulna at lower end — practically a Colles fracture — and was badly bruised about the face and shoulder. It was after midnight when I arrived. The patient had been attended by a local physician in the morning at the time of the accident, and the arm put in a

splint. She was suffering severe pain at the seat of fracture. On examination under ether, I found that the fracture was not properly reduced, and that the skin was still between the fractured ends of the radius. Through a free incision I cleansed out the wound thoroughly, and after securing perfect coaptation closed the wound without drainage. Removed dressings on eighth day and found soft parts united; no pus. Applied plaster cast. Removed cast on eighteenth day, and commenced passive movement of fingers. Considered union of fracture complete on twenty-fifth day; no deformity, and recovered perfect use of fingers and hand.

CASE VII. Mr. M., age twenty-nine, weight 160 pounds, height 5 feet and 10½ inches; strong, muscular man, grocery clerk, when getting down from his team with a basket under each arm, fell on the ice, causing a fracture of the left tibia, at the junction of the middle and lower third. After preparing the patient for operation, I first reduced the fracture in the usual way, that I might determine how perfectly fractures are reduced by the old method. Before cutting down upon it it seemed as though I had complete apposition, but I found it to be only approximate, as there was nearly a half-inch separation. It was filled with blood clots and loose fragments of bone, one sharp spiculum of which was sticking into the soleus muscle. I cleansed it out thoroughly, secured perfect coaptation, and then closed the wound. Dressings removed on the eighth day; no pus; applied ambulatory splint. Recovery was uneventful; splint removed on twenty-fifth day.

CASE VIII. Mr. S., age thirty-four, weight 150 pounds; fair general health. Sustained a fracture of the humerus at the middle third. After the usual preparation for operation I tried to reduce the fracture but could not do so satisfactorily without using more force than was desirable, as I wished to find out what the true nature of the difficulty was. On cutting down upon the fracture I found the usual quantity of clotted blood and débris, and a good sized spiculum of bone at a sharp angle to one surface in the direction of the other. Upon cleansing out the wound and removing the fragments the fracture came together perfectly. I then closed up the wound in the usual manner. Recovery perfect and uneventful.

CASE IX. Mr. K., age twenty-eight, weight 140 pounds, height 5 feet and 9 inches; machinist. Was thrown from a carriage, striking the curbstone and sustaining a fracture of the thigh at junction of lower and middle thirds. Operated by cutting down upon the fracture, removing blood clots and loose particles of bone, secured perfect coaptation, and closed the opening without drainage. Applied splints with weight and pulley. Removed dressings on the seventh day. Union of soft parts, no pus. Union perfect, with no shortening, at end of fourth week.

CASE X. Mr. D., age thirty-eight, weight 160 pounds, height 5 feet and 10½ inches; general health good; clerk. While standing on a barrel to fix some batteries, fell, fracturing the humerus below the insertion of the deltoid. Operated, removing blood clots, etc., and after securing perfect coaptation, closed the wound and applied splints. Removed dressings on the eighth day. Union of soft parts without pus. Applied plaster cast, which was removed on twenty-fifth day. Union perfect.

I will give in detail one case of fractured patella only, as the other cases pursued the same course, and recoveries in each one have been perfect.

CASE XI. Mr. L., age eighteen, weight 160 pounds, height 5 feet and 10 inches; very muscular; a grocery clerk. Fell down stairs and fractured the right patella. I saw him on the fifth day with the attending physician, Dr. Parcher, and advised an operation, which was consented to. On the tenth day I operated under the best aseptic conditions possible with the existing surroundings. I cut down upon the fracture and found the joint filled with clotted blood. There was a single transverse fracture of the patella. The capsular ligament and the accessory bands of vastus were torn apart and the edges very dark and ragged. I think a fractured patella presents the most formidable sight that the surgeon has to deal with outside of the abdominal cavity. It is a thing that must be seen to be appreciated, and I would advise any one to be very sure of his surgical ability before attempting it. I cleansed the joint out thoroughly and trimmed off the edges of the torn ligaments. I had planned to use heavy kangaroo tendon, but when I came to use it, it was so rotten that I had to abandon it and use heavy silk. I passed the needle through the ligamentum patellæ close to the patella, then through the conjoined tendon close to the upper fragment, and after securing perfect apposition, tied the silk, which held them perfectly. I then put a few stitches of catgut in the capsular ligament and closed the wound. The patient did not suffer nearly so much pain after the operation as he did before. I prefer this method to that of drilling the bone. By means of an apparatus which I designed, I kept the leg elevated at an angle of 45° for eight days. On the eighth day I dressed the wound for the first time. It was healthy; no pus or swelling. I then removed the stitches and applied an ambulatory splint, permitting the patient to be up about the room. Discharged the case at the end of the fourth week. At the end of the fifth week Dr. Parcher brought him to my office, and he had no trouble in walking from the depot to the office. At that time, while lying flat upon the back, he could raise the leg to a perpendicular position without the slightest bending of the knee. Motion in the knee was very good at this time, but two weeks later was perfect. In walking there was absolutely no throwing ahead of the leg, as is usual with cases treated by any other method. On examination it was almost impossible to find the point of fracture. Three of the other cases have

NOTE.—Mr. L. was examined by over fifty members at the medical meeting, Dr. Parcher kindly taking him around to each one, and there was not one of them who could locate the place of fracture, which I think proves the result.

been treated by this method, that is, making use of the ambulatory splint with equally good results.

CASE XII. Mr. M., age fifty-eight, weight 145 pounds, height 5 feet and 11½ inches; good health; builder. Fell forward in getting down from a wagon, fracturing the right patella. Operated at once; applied ambulatory splint on eighth day. Recovery uneventful, and case discharged at end of fifth week.

CASE XIII. Mr. F., age sixty-two, weight 140 pounds, height 5 feet and 10 inches; good health; no occupation. Fell on a car track, fracturing the left patella. Operated on ninth day; applied ambulatory splint on ninth day after the operation. Recovery uneventful at end of fifth week.

CASE XIV. Mr. N., age thirty-eight, weight 150 pounds, height 5 feet and 10 inches; teamster. In jumping from moving train, fell, fracturing both patellas. He was intoxicated at the time. Operated on the ninth day. Kept patient in bed five weeks. Recovery perfect.

CASE XV. Mr. R., age forty, weight 130 pounds, height 5 feet and 9½ inches; good health. Fell from a step ladder, fracturing left patella. Operated on ninth day. Applied ambulatory splint on eighth day following operation. Recovery uneventful, and perfect results.

All of these cases of fractured patellæ have given perfect results, and there is absolutely no throwing ahead of the leg, as is usual in cases of fractured patellæ treated by other methods, and resulting in union by a fibrous band with greater or less separation of fragments.

Deductions.— (1) With the advance made in modern surgery, where we do not hesitate to enter the abdominal or cranial cavities (in some cases, even, simply to establish a diagnosis), we surely should not be deterred from operating on fractures by fear of sepsis, and it certainly is unscientific to adopt a blind way when a better presents.

(2) It would be warranted if it did nothing more than to relieve the pain and swelling, which it certainly does.

(3) It shortens the repair process at least one week.

(4) It reduces the chances of deformity and non-union to a minimum.

I consider the ambulatory splint the best dressing for fractures of the leg, as it permits the patient to be up and about, thus avoiding the usual loss of strength, and enabling a great many to attend to portions of their business. In one case where I used the ambulatory splint for a fracture of the tibia, the patient, who owned a grocery and provision store, was enabled to go to the store daily, and to Boston once a week to attend to the buying.

A NEGRO CENTENARIAN. — James Garrison, a negro and former slave, died on March 16th at Richmond Terrace, Staten Island, at an extreme age, commonly reported in the neighborhood as one hundred and twenty-five years, though this is doubtless a considerable exaggeration.

Clinical Department.

MUMPS IN PNEUMONIA; BOROGLYCERIDE.

BY CHARLES W. DULLES, M.D., PHILADELPHIA, PA.

IT is a curious but well-known fact that at certain times there occur almost simultaneously a considerable number of cases of forms of disease or injury which are in general quite rare. This has been recently illustrated by the publication by several observers of reports of the development of mumps in the course of pneumonia. The articles in which these cases have been recorded indicate that insufficient mention of this complication, in the text-books, has led to the impression that it is more rare than it actually is. As a matter of fact the occurrence of inflammatory swelling of the salivary glands in the course of pneumonia is spoken of in such really comprehensive works as that of Wilson Fox on "Diseases of the Lungs and Pleura." Still, the publication of recent observations is more likely to put the members of the profession on their guard than its mention in the books. For this reason — and for another — I think it worth while to make public an observation of my own occurring during the winter of 1899–1900. My patient was a woman over eighty years of age, living in a home for aged women in this city, a person of great neatness and careful habits, who contracted a cold and passed at once into a croupous pneumonia affecting the left lung. She became very ill, but after the crisis she began to improve, and eventually she fully recovered. Just after the crisis I found that she had marked swelling of the right parotid gland which presented all the characteristics of mumps; and afterwards the left parotid gland went through precisely the same stages. In this case there was no question of a second infection from without; it was a plain case of autoinfection.

The second motive for this publication, referred to above, is to describe the treatment adopted. On each side successively I applied a fairly thick compress of surgical gauze saturated with boroglyceride and covered with a layer of paraffine paper and just enough bandage to keep it in place. The relief of pain and the subsidence of swelling which promptly followed the application I am disposed to attribute to the boroglyceride. This is an application of the greatest utility in a variety of inflammatory swellings, and especially in the case of incipient boils and carbuncles. In my hands it has wholly replaced the poultice; and since some years ago, when I began to use it where poultices used to be employed, I have not had to apply the knife to either boil or carbuncle. I have also found it useful in inflammatory swellings below but near to the true skin. I have observed recently the extensive advertisement of a special preparation recommended for use in similar cases, which I am informed consists of a mixture of gylcerine and talcum powder. If this has proved of value, I believe that it was through the depleting influence of the glycerine; and boroglycer-

ide — of a strength not greater than 50% — I presume would be a more rational and equally useful application.

A BRIEF SUMMARY OF NINE CASES OF LOBAR PNEUMONIA TREATED BY ICE PACK.

BY GEORGE L. COLLINS, M. D.,

House Officer, Carney Hospital.

Having in mind the discussion of the treatment of pneumonia in the *Medical Communications of the Massachusetts Medical Society*, Vol. XVIII, it was deemed advisable in the last service of Dr. Wm. F. Temple, at the Carney Hospital, to try the effect of treatment of lobar pneumonia by the continued application of dry cold over the seat of the pulmonary lesion. The cases reported below came under my direct charge during this service. The treatment adopted consisted in the conventional supportive and symptomatic treatment plus the application of dry cold by means of ice-bags.

Case I. M. H., age sixty-five. Comes in with temperature of 102°, pulse 100, respirations 40. Second day of attack: Pain in left lower chest; cough. Bronchial breathing, prolonged expiration and few fine crepitant râles at left base. Lungs otherwise negative. White count, 21,000. Treatment: Liquid diet, whiskey half ounce every three hours; strychnia, one-sixtieth grain every four hours. Left chest packed with ice-bags below. In one day temperature reached 103.6, and two days later (fifth day of disease) the temperature, pulse and respirations were normal. Signs in chest never showed any increase; never any dullness. Râles cleared up on fifteenth day. This patient was the only one of 9 cases to complain of discomfort of ice-bags. Discharged well on 18th day of disease.

Case II. C. F., age twenty-three. Comes in on second day of attack. Cough; pain in neck, chest and abdomen, bloody sputum, anorexia, vomiting. Heart enlarged, no murmurs, pulse regular. Expansion of chest limited on left side; left lower lobe shows usual signs of consolidation; only few râles in right chest. Temperature 103°, pulse 120, respirations 46; white count 52,000; urine normal. Treatment: Strychnia, rum, ice pack to left chest. Two days later (fourth day of attack) temperature fell to 99.2°, reached normal a week later. Ice pack omitted on eleventh day of attack. Signs cleared up on fifteenth day. (See diagram.)

Case III. M. S., age sixteen. Entered on third day of attack. Headache; pain in chest, aggravated by cough and deep inspiration. No expectoration of any account. On entrance nothing found in chest but weak breathing in lower left chest; face flushed, temperature 102.3°; white count 46,000; urine normal with chlorides diminished. Left chest packed with ice about the base on the chances. Two days later (fifth day of attack) distinct and marked signs of consolidation in upper right lobe. Temperature on this day 103°. Ice pack at once changed to this side, and rum and strychnia continued as from entrance. Temperature dropped on this day. Reached normal on eighth day of disease. On thirteenth day of attack dullness almost all cleared up; râles on coughing; slight pleuritic pain in lower right chest. Signs cleared up on seventeenth day. (See diagram.)

Case IV. M. M., age seven. Entered on third day of attack. Temperature 104°, pulse 130, respirations 40. Pain in left chest, cough; no expectoration, headache, anorexia, constipation, some abdominal pain. Usual signs of dullness, with no râles in left lower lobe. White count, 50,000. Active hyperemia of kidney. Treatment: Whiskey, liquids, strychnia, left lower chest packed in ice. One day later (fourth day of disease) temperature began to fall, and was normal on sixth day. Signs cleared up on fourteenth day.

Case V. D. M., age sixty. Entered on second day of attack. Cough; dyspnea; slight expectoration, not bloody; constipated; pain in chest; cheeks flushed; white count 10,000; temperature 101°. Treatment: Whiskey, strychnia, ice pack to left chest, where dullness with bronchial breathing and râles were found. Three days later distinct consolidation of right middle lobe with usual signs appeared, with friction rub over lower right lobe. White count 13,000. Left chest now clear. Ice pack changed to right side of chest. Pulse now intermittent. Temperature still about 101°. Two days later (seventh day of attack) temperature rose to 102°, pulse 100, irregular and intermittent, respirations 50. One day later, signs remaining unchanged, patient died.

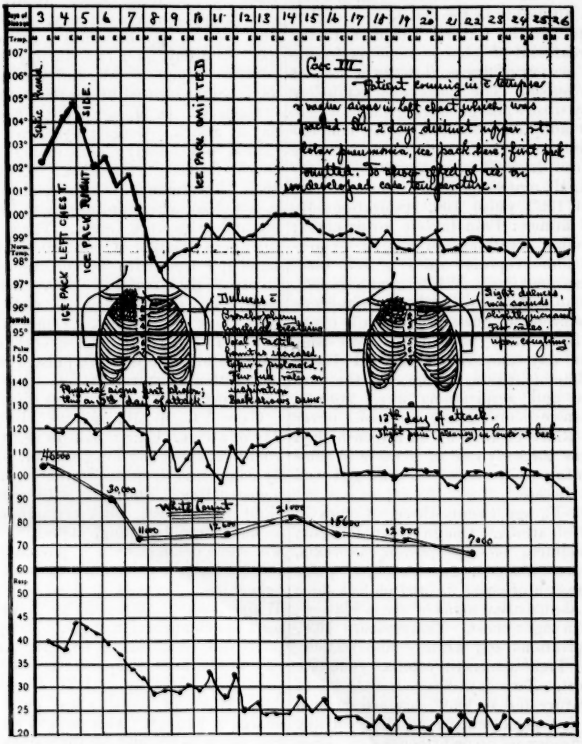
Case VI. M. M., age 28. Entered on third day of attack. Chill; pain in right side of chest; vomiting, expectoration greenish; pain made worse by cough and deep inspiration; constipated; now menstruating. Dullness with usual signs over right upper lobe, râles throughout either chest, — moist and bubbling. Question arose whether we were dealing with a pneumonia in state of resolution, or a pneumonia on top of a generalized bronchitis. Ice pack decided on; rum, strychnia. White count 52,000; active hyperemia of kidneys; pneumococci in sputa. Temperature 103.5°, pulse 120; respirations 58. In three days (sixth day of disease) temperature fell to normal, and process in right upper lobe cleared up on tenth day. Râles in either chest persisted until discharge of patient. This patient was exceptionally sick on entrance and for three days after entrance, but she never complained of inconvenience from ice pack. Ice pack was left on six days and removed on ninth day of attack.

Case VII. C. H., age thirty-eight. Comes in in state of delirium tremens. On spree four days. Dullness with usual signs found in lower left lobe. As near as can be made out this is fourth day of attack. Dyspnea, cough; pain in lower left chest, made worse by cough or deep inspiration. No blood in expectoration. Temperature 103°; white count 17,300. Treatment: Calomel, followed by salts; bromides, chloral, capsicum; ice bags to

left lower chest, whiskey, strychnia. In twenty-four hours temperature fell to about normal (fifth day of attack). Signs in chest practically all gone on twentieth day.

CASE VIII. G. S., age eleven. Entered on second day of attack. No chill; cough, pain in right chest, no expectoration; dullness with usual signs over right upper lobe. Chlorides in urine diminished; white count 23,000; temperature 105°; pulse 123, of poor volume and compressible; respirations 50. Treatment: Rum, strychnia, ice pack to affected lobe. In three days (fourth day of attack) temperature dropped to normal, and white count dropped to 16,600. On sixth day ice omitted. Signs cleared up by fourteenth day.

CASE IX. G. B., age fourteen. Entered on third day of attack. Pain in right back, vomiting, cough; pain made worse by cough; rusty expectoration. Temperature 103°, pulse 110, respiration 30. Physical examination shows dullness with usual signs over middle lobe, especially in back. White count 34,400. Treatment: Rum, strychnia, ice pack to right chest. Temperature fell on fifth day of attack. Lungs showed only an occasional râle on ninth day.



SUMMARY AND CONCLUSIONS.

In only one case did the ice pack cause discomfort. In no case was the crisis accompanied by dangerous collapse.

The pack has been used to abort cases just beginning (Case I), in cases with well marked signs, and in cases showing resolution.

Contemporary signs of bronchitis were not considered contra-indicatory.

High temperature (and not physical signs) has been in each case the indication for application of ice. Lowered temperature and not physical signs has been in each case the indication for removal of ice. The average fall in temperature was 4.5°. In all but one case this fall was within forty-eight hours of application of ice. In most cases it was within twenty-four hours. The slowest fall of temperature following ice pack was in Case III, when temperature took five days to fall 7°. This patient was suffering from a septic hand. The

average fall of temperature was 4.5° and took place on the fourth day.

The white count invariably began to fall with the temperature, but reached normal in no less than one week after temperature was normal.

The ice pack apparently had no particular effect in either shortening or prolonging the duration of physical signs. The physical signs cleared up on the fourteenth day.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

THE MANAGEMENT AND CONTROL OF INFECTIOUS DISEASES.

The Utility of Isolation Hospitals in Diminishing the Spread of Scarlet Fever.

Attempts having been made in England to show that isolation hospitals had failed to accomplish the object for which they were intended, Dr. Newsholme[1] contributes a paper in which he shows that, if death rates are to be considered as conclusive, the returns relating to scarlatina "show a strong case for the continued use of the present preventive measures, among which hospital isolation and disinfection claim an important part." He shows that in the period 1850 to 1885 the death rate had been extremely irregular, rising frequently to a very high rate and then sinking to a very low one, as, for example, from 451 per million in 1861 to 1478 per million in 1863, and down again to 546 in 1866. But since 1885 the mean rate had not only been low, but it had been quite uniform and free from extremes from that time to the present. He concludes that "preventive measures, among which hospital isolation holds an important place, have been associated with the remarkable and almost uninterrupted decline in the death rate from this disease."

The reasons which he assigns for the fact that an ideal condition has not yet been attained are briefly the following:

(1) Hospital and home isolation have never been perfectly carried out.

(2) Not only have a considerable proportion of the notified cases remained unisolated, but a considerable proportion of the total cases have not been notified. This is due to various causes, such as failure to call in medical aid in slight or unrecognized cases, errors in diagnosis and neglect to notify. Every additional case notified gives an additional opportunity for preventing the spread of the disease by personal infection; and every such notified case can be made a centre of inquiry leading to the detection of unnotified cases, if sanitary administration be active and intelligent.

(3) The best sanitary administration cannot accomplish everything. There must be hearty co-operation on the part of parents and medical practitioners, if efforts to secure early diagnosis and early isolation are to be successful. The law is much more regardful of the welfare of cattle than of human beings. A doctor is not required to notify a case of scarlet fever till he "becomes aware" that it is certainly of this nature, but a farmer must notify each case, and *each suspected case* of certain cattle diseases.

To suppose that the spread of a disease caused by particulate infective material is not diminished by isolation of infective persons and by destruction of the infective particles, and to suppose further, that the occasional occurrence of "return" cases is more than a small drawback to the good achieved by isolation hospitals, is to strain the facts and to arrive at a conclusion which is contradicted by our general knowledge of the causation of specific febrile diseases.

[1] Journal of Hygiene, vol. 1, No. 1, p. 145, January, 1901.

Duration of Smallpox Immunity at Pekin.

Dr. Matignon,[2] in a communication to the Academy of Medicine, stated the fact that an attack of smallpox in Northern China confers a temporary immunity lasting from seven to nine years. He also says that among Chinese vaccinated children the ratio of success is 79.5% at twelve years of age, 77% at ten years, and 53.3% at eight years, since the majority of children have probably, if not certainly, had smallpox in their early childhood. He has seen 3 positive cases of smallpox occurring a second time in the same person, the victims being two Frenchmen and one Swiss, and while it is proper to take account of the diminution of resistance caused by the fatigue of a long voyage, the severity of the weather, etc., he says the real cause is to be found in the widespread prevalence of smallpox at Pekin. At the beginning of spring, one may see upon the streets everywhere Chinese with their faces and hands covered with variolous crusts in a condition of desquamation, at the same time selling embroidery, trinkets, etc. He urges the importance of revaccination immediately upon arriving in China.

Prevention of Tuberculosis.

Dr. Thompson,[3] of New South Wales, proposes the following measures for the prevention of tuberculosis: (1) Notification and registration of phthisis. Such registration to be confidential; (2) free examination of sputa; (3) disinfection of rooms obligatory after death or removal of consumptive patients; (4) local registrars to notify every death from phthisis to the health authority as soon as received by them; (5) enforcement of good building laws.

Existence of Tuberculosis at Different Ages.

Nägeli[4] found at the Pathological Institute of Zurich, as the result of 500 autopsies, no traces of tubercle in 16 infants under one year old, 12 of whom were new born. From two to five years it is rare, but fatal when it occurs. From five to

[2] La mèd. mod., November 7, 1900, p. 522.
[3] Public Health, January, 1900, p. 248.
[4] Hyg. Rundsch., 2, 1901.

fourteen, one-third of the bodies showed tubercle. From fourteen to eighteen half the cases were tuberculous. From eighteen to thirty nearly every body showed marks of the disease, but in one-fourth healing had occurred. All the bodies over thirty years of age showed alterations due to tubercle, but in the majority of these the healing process was complete, the proportion of "cures" increasing with the age. It would appear that after thirty years' existence every one (in the neighborhood of Zurich) has been more or less successfully attacked by the *bacillus tuberculosis*, but from the fact that not more than one in six or seven dies of the disease, and that most of these are under thirty, one may conclude that the adult body is, as a rule, well able to resist the attack.

Action of Sunlight on Tubercular Sputum.

Jousset[5] records some experiments made in order to determine the vitality of bacillus tuberculosis in sputum, after exposure to direct and to diffused sunlight.

Dried sputum, after four hours' exposure to diffused sunlight, no longer infected guinea pigs, though the same sputum without such exposure was capable of producing typical tuberculosis on inoculation.

Another specimen of sputum, after an exposure of seven hours to diffused sunlight, produced only a localized tubercular ulcer at the seat of inoculation, without any general infection such as was produced by another portion of the same sputum which had not been exposed.

Sputum, the virulence of which had been tested, was rendered innocuous after drying and exposure to direct sunlight for one hour.

The results show that tubercular sputum when dried in sunlight is either harmless, or, at least, has its virulence attenuated by shorter exposure to sunlight than previous experiments had led us to suppose.

Tuberculosis and Marriage.

Professor Massalongo, of Verona,[6] indicates certain measures which, in his opinion, should be taken to prevent the production of tuberculous offspring.

Recognizing the infectious character of tuberculosis, he says that while it may not be practicable under present laws and customs to prevent the marriage of tuberculous persons, it may be possible to take such measures as shall diminish the dangers of such marriages.

He advises the widespread publication of information upon the subject of the danger of marriage of tuberculous persons; as well of extremely early marriages; also the necessity, where such marriages occur, of rendering them sterile; of removing from the domestic fireside the offspring of such marriages as a matter of safety, and of keeping careful watch of such children till they have passed the period of puberty.

[5] Comptes Rendus de la Societe de Biologie, November 2, 1900; ii, p. 884.
[6] Gior. della R. Soc. ital. d'igiene., August 31, 1900; p. 337.

Diffusion of the Plague.[7]

Not a year has passed since 1879 in which the plague has not developed in at least one country, and the number of countries invaded has increased, until in 1898 it was prevalent in Arabia, Persia, China, Japan, India, Russia, East Africa and Madagascar.

Destruction of Rats to Prevent the Plague.[8]

Certain French Navigation Companies have offered bounties to their sailors for rats caught on board the ships. The French Government has also taken up the subject: "If dead rats are found on board ships coming from infected countries they are to be examined bacteriologically; if the plague bacillus is found, the cargo and baggage must be disinfected and the dead rats burned."

Extraordinary Measures for Preventing the Plague.[9]

An order was published in Holland, December 28, 1900, prohibiting, (1) the examination of persons or goods for indications of bubonic plague by means of experiments on animals; (2) post-mortem examination of corpses of persons whose death has been due to bubonic plague, or who are suspected of having the disease; (3) the transport of any material that is infected or suspected of being infected with the plague. This order to remain in force one year from date.

The Results of Serum Treatment in Diphtheria.

Siegert[10] of Strasburg has collected the results of 37,000 cases of diphtheria in which operations were performed, with the object of showing the importance of using antitoxin early in the course of the disease and in sufficiently large doses.

His work contains many interesting and extremely valuable tables, in which are presented the results of serum treatment in 69 hospitals in most of the principal cities of Germany, Austria and Switzerland, and 1 Paris hospital. These tables show not only the reduction of fatality of diphtheria under serum treatment, but also the reduction in the fatality of operated cases and in the ratio of operated cases. He selects a period of nine years, 1890-1898, and divides it into three periods; a "fore-serum" period of four years, 1890-1893; an introduction year, 1894, and a "serum" period, 1895-1898.

His first table contains the results of 36,422 operated cases, with 18,336 deaths. Of these cases 17,673 occurred in the fore-serum period with 10,701 deaths, or 60%, while 13,534 occurred in the serum period, or 35.7%. The mortality during the introduction year was 53.7%.

In the second table the general fatality from diphtheria in the fore-serum period was 41.5%

[7] Twenty-eighth Report of Local Government Board Supplement. England. P. 202.
[8] Rev. d' Hygiene. August, 1899.
[9] Official order signed by the Queen of Holland, and by the Ministers of Justice, and of the Interior, December 28, 1900.
[10] F. Siegert: Vier Jahre vor und nach der Einführung der Serumbehandlung der Diphtherie. Berlin. 1900.

and that of the serum period was 16.5%. This table embraces the results in 23 hospitals, with a total of 41,917 cases.

Another table presents the ratio of operated cases to all cases treated in 21 hospitals, and shows very plainly that the necessity for operation is diminished under the effects of serum treatment, since the ratio of operated cases in the fore-serum period was 47.2% and that of the serum period was only 27.5%. The whole number of cases considered in this table was 40,038.

The Freeing of Places from Mosquitoes for the Prevention of Malaria.[11]

Drs. Fermi and Lumbau contribute a paper detailing the methods employed to rid the city of Sassari, in Northern Sardinia, of mosquitoes. The methods employed consisted mainly of drainage of open, stagnant bodies of water, the treatment of others with petroleum where drainage was impracticable, and the uses of gaseous disinfectants and powders as culicides.

Another article in the same journal details the substances employed for the purpose of destroying mosquitoes.[12]

(To be continued.)

Recent Literature.

Arsenical Poisoning in Beer Drinkers. By T. M. KELYNACK, M.D., and WILLIAM KIRKBY, F.L.S. London: Baillière, Tindall & Cox. 1901.

This book contains a résumé of this important subject, which has been for some time and is still exciting lively interest throughout Great Britain.

The Introductory portion treats of the beginning, extent, duration, and age and sex distribution, together with the discovery of the source of the poison.

The second or clinical portion contains a full description of the symptoms and appearances noted by the authors during a long series of observations. It is quite fully illustrated with photographs showing lesions of the skin, etc. The third part, "Chemical," contains a description of the methods employed for the detection of arsenic in the beer and sugar.

A full bibliographical table is appended to the work.

INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.—The Fifth Triennial International Congress of Physiologists will be held this year at Turin from September 17th to September 23d. The University Institute of Physiology, under direction of Professor Angelo Mosso, will be placed at the disposal of the congress. In connection with the congress an exhibition of apparatus will be open from September 14th to 23d.

[11] Ann. d'Igiene Speriment, Rome, 1900, p. 93.
[12] Loc. cit., p. 89.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, MARCH 28, 1901

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ARSENIC IN FOOD AND DRINK.

THE wide distribution of arsenic in nature as a constituent or impurity of several ores, its common use in the arts for different purposes, and its extremely poisonous character, all tend to make it a dangerous concomitant of the life of human beings.

The recent report ("Epidemic Arsenical Poisoning Attributed to Beer," by Dr. G. S. Buchanan, London, February 7, 1901) of the Local Government Board of England presents an account of the epidemic of arsenical poisoning which has taken place in England, chiefly since November 1, 1900. A communication in the *British Medical Journal* (Letter of Dr. E. S. Reynolds) of November 24, 1900, had called attention to certain cases which had been admitted to the Workhouse Infirmary of Manchester, and also in other institutions. The disease was characterized by paralysis, wasting of certain muscles, and loss of function in certain sensory nerves. After careful clinical study, Dr. Reynolds, who reported the cases, concluded that he was dealing with arsenical poisoning. Soon afterward Dr. Tattersall, of Salford, noticed an increase in the number of cases and deaths from peripheral neuritis occurring in his neighborhood. In 18 cities and towns visited by Dr. Buchanan, under the direction of the Local Government Board, cases of the same nature had occurred to the number of nearly 4,000. Further inquiry showed that the persons affected were generally beer drinkers, and the beer, on analysis, was found to contain arsenic. The invert sugar or glucose used in making this beer was made at one factory, that of Bostock & Co., near Liverpool.

The clinical appearances presented two types, an "alcoholic type" in which the symptoms were essentially those of peripheral neuritis, not accompanied with other manifestations enabling the disease to be differentiated from what it has been

customary to term "alcoholic peripheral neuritis;" also an "arsenical type" in which the main symptoms were diverse affections of the skin — for example, erythemata, herpes, pigmentation etc. — which are seldom known to be associated with "alcoholic peripheral neuritis," but are met with frequently in cases of sub-acute or chronic poisoning resulting from ingestion of arsenious acid. Another point frequently noted was the absence of any of the symptoms of gastric and intestinal disturbances commonly attributed to arsenical poisoning. It was found to be impossible to state exactly the number of deaths which were due to this cause, in consequence of the indefinite character of the symptoms. In Manchester alone, 36 deaths were attributed to arsenic poisoning between November 25, 1900, and January 10, 1901. Of these, 23 were women and 13 were men. The amount of beer used by the sufferers varied from a pint to two gallons per day. Many drank a gallon each, daily. Samples of glucose obtained from the factory of Bostock & Co. were found to contain from .02% to .05% of arsenious acid. The glucose was made by treating Indian corn or sago starch with sulphuric acid. The source of the arsenic appears to have been the pyrites from which the sulphuric acid was made.

According to the *Sanitary Record* of February 21st, this incident has entailed a serious loss to the brewers of Manchester and other cities, since hundreds of gallons of arsenical beer were poured into the sewers. The loss also falls heavily on Bostock & Co., since they have left on their hands sugar valued at half a million dollars, contaminated with arsenic, beside the possibility of heavy demands for damages.

Examinations of the beer which was believed to be the cause of the epidemic showed quantities of arsenious acid varying from $\frac{1}{10}$ grain to $1\frac{1}{2}$ grains per gallon.

Early in December the Manchester Brewers' Association recommended the adoption of the following precautions:

That all beer in which any sugar bought of Bostock & Co. had been used should be recalled, and destroyed if found to contain arsenic; that no beer should be sent out until it had been tested and found to be free from arsenic; that a certificate of freedom from arsenic should be given for beer which had been tested for arsenic, and that only such should be sold.

Another source of arsenic in beer is suggested by Mr. Wm. Thompson. (In a paper in the *Journal of the Society of Arts*, of February 15, 1901). The malted barley used for making the beer, after being soaked in water till it begins to sprout, is dried over fires of coke or anthracite coal, the fumes of which, passing over the grain, deposit arsenic from the fuel thus used. Out of 62 samples of malt which Mr. Thompson examined, all except 7 contained appreciable amounts of arsenic, varying from $\frac{1}{200}$ grain per pound to as much as $\frac{1}{17}$ grain. He also found arsenic in 5 samples of hops and in 7 samples of yeast. Mr. Thompson also found arsenic in 8 samples of glucose, in one sample of caramel, in one of common salt, in one sample of phosphate of soda, and in one sample of nitrate of soda.

Certain tables appended to this English report would appear to confirm the suspicion that arsenical poisoning from beer had been going on for some years past. Deaths had been certified in Manchester which might have been construed as due to arsenic, to the number of 209 in 1896, 246 in 1897, 224 in 1898, 228 in 1899, and 340 in 1900.

The question of legislation having for its object the restriction of the use of arsenic in the manufacture and sale of wall papers and of textile fabrics has been brought to the attention of the Legislature of Massachusetts several times since 1872. All of the early attempts, however, were vigorously opposed by manufacturers. The writer recalls one instance in which a noted chemist from another State, who had published in a well-known cyclopedia a statement of his belief in the serious danger from certain uses of arsenic, when called before the legislative committee at the request of certain manufacturers was for some reason induced to retract his former published statement. In 1900, however, with scarcely any opposition, a law was enacted providing that dress goods or articles of dress should not be manufactured or sold in the State if they contained over $\frac{1}{100}$ grain per square yard, the limit for other materials being $\frac{1}{10}$ grain per square yard.

While the foregoing law does not apply to articles of food or drink, the analytical work in the State laboratory, which the enactment of this law has necessitated, has also given unusual opportunity to examine certain articles of food and certain drugs which were suspected of containing arsenic. The samples of glucose which were examined contained mere traces of arsenic, the quantity not being appreciable. The samples of beer examined were also practically free from arsenic. Out of 173 samples of glycerine examined, most of which were of American manufacture, 115 contained arsenic, from a trace up to 8 parts per 100,000. Out of 26 samples of phosphate of soda examined, 13 contained arsenic and one of these contained the dangerous amount of .05%, or 50 parts per 100,000. It is evidently a matter of importance that these articles, which are used internally, should be entirely free from arsenic, and the fact that many samples obtained were found to be free from this dangerous impurity shows that all can be made in the same manner by observing proper care in manufacture.

ASSOCIATE MEMBERSHIP IN THE BOSTON MEDICAL LIBRARY.

ON page 316 of this issue will be found the Amendments to the By-laws of the Boston Medical Library, which were made at the meeting held on Tuesday of this week. As the real significance of these changes may not be apparent at first sight, we desire to call to the attention of our readers their object.

The essential feature is that which provides for the creation of a class of associate members for whom the annual assessment shall be one-half of that paid by the active members. This new class of members is open only to young men who have received their medical degree within five years, or to those who live outside the limits of Old Boston or those parts of Roxbury now included in the Suffolk District of the Massachusetts Medical Society.

The expenses of running the Library have naturally been greater in its new building. As was expected it was found to be necessary to increase the annual assessment to ten dollars. The members of the Library have cheerfully paid this increased amount and have felt that the improved facilities and attractions of the new building amply justified the increased expense. The financial support of the Library is therefore assured. It has been felt, however, that the growth of the library membership would be very much hindered by the increased assessment.

The gain in new members must come chiefly from the young men just entering practice and from those living outside the city limits. Men of these two classes would naturally hesitate to join the Library and to commit themselves to the yearly payment of ten dollars. To the younger men this would be a heavy burden, while those living out of town would feel that they would not use the Library enough to justify this outlay. By the creation of a class of associate members with a five-dollar assessment, it is believed that many will avail themselves of the advantages which the Library offers, who would otherwise feel themselves debarred.

The Library building was erected in chief part by the personal sacrifices of the physicians in and around Boston. They felt that a new building meant new members and wider spheres of influence for the Library.

MEDICAL NOTES.

PHYSICIANS IN CANADIAN PARLIAMENT.— According to the *Medical Record*, eighteen doctors have been elected members of the new Dominion Parliament. Among the few conservatives who escaped the landslide, it is a gratification to see the name of Dr. Roddick. It would have been a distinct loss to the medical profession of Canada had he been defeated, especially when the efforts to establish a licensing board for the Dominion are within a reasonable distance of success. Dr. Roddick has given much time, and has shown energy and ability in overcoming the difficulties in the way of this scheme, and has rendered a public service in the interests of not only the medical profession but the community at large, deserving the highest praise.

WILLS HOSPITAL OPHTHALMIC SOCIETY. — The members of the Staff of Wills Hospital of Philadelphia have formed themselves into an association known as the Wills Hospital Ophthalmic Society. The object of the association is to "promote the scientific usefulness of the institution by the discussion of papers and the exhibition of patients who have been under the care of the members of the attending staff." Meetings will be held twice a month, and reports of the proceedings will be published.

MARRIAGE REFORM LAW IN MINNESOTA. — The State Senate has recently reconsidered and finally passed a bill prohibiting the marriage of insane, epileptic and idiotic persons and requiring a medical certificate of all applicants for marriage licenses. Amendments to the bill as first introduced were adopted, thereby permitting the marriage of feeble-minded persons over forty-five years of age, either man or woman. The bill is reported to have passed by a vote of 34 to 17.

A SAVING OF LIVESTOCK. — It is reported from Washington, through the Department of Agriculture, that over $6,000,000 worth of young animals were saved during 1900 by the prompt application of remedial measures for blackleg. Over 2,500,000 doses of the vaccine were distributed by the Department during the year.

DEATH OF PROFESSOR MANASSEIN. — It is announced that Professor Manassein, the founder and for many years the editor of the well known Russian medical journal, *Vratch*, is dead at the age of 60.

PLAGUE IN WEST AUSTRALIA. — It is reported by the governor of West Australia that a white man and a Chinaman have died of bubonic plague. There is no reason to fear a spread of the disease.

HOSPITAL FOR TUBERCULOSIS IN WISCONSIN. — A bill is before the legislature of Wisconsin, to provide a hospital for the care of incipient cases of tuberculosis.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 27, 1901, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: diphtheria 89, scarlatina 39, measles 95, typhoid fever 5.

SCARLET FEVER AT KEENE, N. H. — The scarlet fever situation in Keene and vicinity is said to be improving. There have been several new cases, but the number of deaths is growing smaller. Five deaths occurred in Keene and in Swanzey last week, and new cases were reported, but no deaths have occurred for two days. Eleven of the new cases are in families hitherto free from the disease.

PRECAUTIONS AGAINST SMALLPOX. — Owing to the appearance of a case of smallpox in Digby, Nova Scotia, the Boston Board of Health has had the crew of the steamer *Boston*, running from Yarmouth to this port, vaccinated. The crew of the Dominion Atlantic Line steamer, *Prince George*, were vaccinated at Yarmouth. No apprehension is felt of the introduction of the disease from this source.

AWARD OF BOYLSTON PRIZE FOR 1901. — It is officially announced that the Boylston prize for this year has been awarded to Howard Crawley, S.B., of Cambridge, for an essay on "Histological Changes Occurring in the Intestinal Cells of the Newt during the Absorption of Fat."

NEW YORK.

A NEW LYING-IN HOSPITAL.—The Attorney General of the State has approved the certificate of incorporation of a new lying-in institution, to be known as the Manhattan Maternity Hospital and Dispensary, particularly designed for severe and complicated cases, with facilities for carrying on a large tenement house midwifery service. An amount of money has been contributed by an anonymous benefactor sufficient for the purchase of a suitable plot of land, the erection and equipment of the hospital building, and a partial endowment for a term of years. It is understood that Dr. J. Clifton Edgar, professor of obstetrics in the medical department of Cornell University, has been mainly instrumental in organizing the Maternity, and that it is to be located in the upper east side of Manhattan.

DYNAMITE EXPLOSION IN RAPID TRANSIT TUNNEL — A very severe dynamite explosion occurred on March 21st at 181st Street and Broadway, in the Rapid Transit tunnel now being constructed, which injured four workmen, and might have destroyed the lives of forty but for the prompt action of Engineer John Mullen, who with great presence of mind immediately started the air compressors, which drove out the suffocating dynamite fumes and supplied fresh air until the men could be rescued. For over half an hour they were lying face downward in the tunnel, breathing the fresh air thus furnished them. The shaft at this point is 131 feet deep.

QUALIFICATIONS OF PRESIDENT OF STATE COMMISSION IN LUNACY. — Governor Odell has signed the bill, recently passed by the Legislature, providing that the president of the State Commission in Lunacy shall be a physician of ten years' experience, who has had five years' experience in the treatment of mental and nervous diseases, or two years' experience in the treatment of committed insane.

TWO CENTENARIANS.—Martin Dyer died in New York on March 3d, at the age of one hundred and one years. He was born in Ireland, November 24, 1800, and came to America in 1835. His descendants number 40 grandchildren and 110 great-grandchildren. Mrs. Harriet Matteson has recently died at Dunkirk, N. Y., at the reputed age of one hundred and four.

RESIGNATION OF FRANCIS DELAFIELD, M.D. — Dr. Francis Delafield, who has been the honored incumbent for many years, has resigned the chair of practice of medicine in the College of Physicians and Surgeons, and Dr. Walter B. James, one of the instructors in general diagnosis, has been appointed to the position.

MIDDLETON GOLDSMITH LECTURE. — The Middleton Goldsmith Lecture, for 1901, the full text of which is given in this issue, was delivered March 26th by Prof. Charles S. Minot, of the Harvard Medical School, on the subject, "The Embryological Basis of Pathology."

AMENDMENTS TO BY-LAWS OF BOSTON MEDICAL LIBRARY.

The following amendments to the By-Laws of the Boston Medical Library were made at a special meeting Tuesday, March 26, 1901:

Wherever the word "Association" occurs in the By-Laws it shall be omitted and the word "Library" inserted.

Amend Article XIII. so that it shall read as follows: —

The Membership of the Library shall consist of Active Members, Associate Members, and Life Members.

Any member of the Massachusetts Medical Society, Massachusetts Dental Society, Massachusetts College of Pharmacy, and such other person as may, on application, be approved by the Executive Committee, may become an active member by enrolling his name in the list of active members at the Library and paying the assessment for the current year.

Any person eligible to active membership, provided that not more than five years have elapsed since he received his medical degree, may become an associate member for all or any part of the said term of five years by enrolling his name in the list of associate members at the Library and paying one-half the assessment for active members yearly.

Any person eligible to active membership, provided he live outside the limits of Old Boston or that part of Roxbury now included in the Suffolk District of the Massachusetts Medical Society, may become an associate member by enrolling his name in the list of associate members at the Library and paying one-half the assessment for active members for the current year.

Associate members shall have all the privileges of active membership except the right to vote or to borrow books from the Library.

Any active or associate member, or any person eligible to active membership may, by the payment of $150 at any one time, become a life member, and be thenceforth exempt from payment of the annual assessment. Life members shall have all the privileges enjoyed by active members except that they shall not be allowed to vote on the question of the amount of the annual assessment.

All money which shall be received for life memberships shall be invested by the Treasurer, and only the income thereof shall be employed for the uses of the Library.

Amend Article XIV. so that it shall read: —

The annual assessment for active members shall be such as is directed by vote of the active members at the annual meeting, and shall be payable in advance.

THE RIGHT TO WILL ONE'S BODY FOR SCIENTIFIC INVESTIGATION.

THE *New York Medical Journal* comments as follows on a recent ruling of the Supreme Court of California: "The Supreme Court of California, in the case of Enos *versus* Snyder, has laid down a ruling, the results of which appear to us to be very regrettable from a scientific point of view. It has decided, in a contest between next of kin, on the one hand, and claimants under a will, on the other hand, for the possession of a corpse, that a man cannot by will dispose of that which, after his death, will be his corpse. The custody of the corpse and the right of burial belong to the next of kin in preference to the administrator. This view is based on the fact that the general English and American legal authorities establish the rule that, in the absence of statutory provisions, there is no property in a dead body. If this ruling is correct, the sooner statutory provisions are obtained enabling a man who feels that a great benefit to humanity will accrue, through increase of medical knowledge, by the continuance post mortem of an investigation into his case, or that new light may be shed upon anthropological, psychological, or other scientific problems, to authorize by will such use of his corpse, the better. We commend this subject to the consideration of the Medico-Legal Society."

Correspondence.

NOTES ON X-LIGHT: THE CONTROL GUINEA PIGS.

MR. EDITOR: — In this journal for February 14th I showed that x-light could kill. That an invisible radiation of which none of our senses make us conscious should be able to produce death, leaving no sign to the eye, is one of the most remarkable facts in the domain of medicine, and full of promise for therapeutics. These experiments were published chiefly because: (1) in them for the first time the participation of electricity in the results was certainly excluded; (2) they were the first that proved that x-light could act below the surface of the body; (3) they showed that x-light had the power to profoundly affect the life processes. As the experiments have been doubted, the deaths being attributed to other causes, I report the condition of the control guinea pigs. These were kept in the same pen with those exposed to x-light. All were given the same food and care. I took entire charge of the animals during the whole of all the investigations, that nothing might escape my observation. Some of the control guinea pigs gave birth to young that have now reached the adult stage. No death or visible sickness has occurred except in those exposed to x-light. If activity, appetite, fine coats and bright eyes are signs of health, these control animals are well. My chief object in these investigations was this: A friend had been operated on for cancer, which I expected would return. As no second operation would have been practical, I desired to know whether x-light could be used to affect cell growth in the interior of the body; and if it could, whether the results could be accomplished without danger of burning. The experiments cause me to believe that internal cancers beyond the reach of the knife will be favorably affected by x-light. There is no more important investigation in the realm of medicine than the study of the effects of x-light on internal cancer.

Very truly yours,

WILLIAM ROLLINS.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 16, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1,459	432	24.87	20.41	1.99	.69	3.97
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	526	122	21.28	14.63	1.71	.57	1.71
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	214	71	18.68	20.55	—	—	1.86
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	125	39	25.60	18.40	2.40	7.20	.80
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	92	25	21.80	22.89	—	1.09	2.18
Boston	560,892	238	77	18.06	25.20	2.10	—	5.46
Worcester	118,421	40	16	5.00	27.50	—	—	—
Fall River	104,863	13	—	49.20	30.75	—	6.15	—
Lowell	94,969	30	9	23.31	23.31	—	6.67	—
Cambridge	91,886	29	6	13.80	6.90	—	—	—
Lynn	68,513	14	4	7.14	21.42	—	—	—
Lawrence	62,559	20	8	10.00	30.00	—	—	—
New Bedford	62,442	27	6	3.70	3.70	—	—	—
Springfield	62,059	28	11	3.57	21.42	—	—	—
Somerville	61,643	16	4	18.75	43.75	—	—	6.25
Holyoke	45,712	12	9	24.99	33.33	—	—	16.66
Brockton	40,063	8	2	12.50	25.00	12.50	—	—
Haverhill	37,175	8	—	12.50	50.00	—	—	—
Salem	35,956	11	5	18.18	9.09	—	—	9.09
Chelsea	34,072	15	2	6.67	6.67	—	—	—
Malden	33,664	19	6	10.52	26.30	—	—	—
Newton	33,587	11	4	9.09	9.09	—	—	—
Fitchburg	31,531	12	5	16.67	16.67	—	—	8.33
Taunton	31,036	—	—	—	—	—	—	15.38
Gloucester	26,121	5	3	20.00	—	—	—	—
Everett	24,336	14	4	21.42	7.14	—	—	—
North Adams	24,200	9	4	11.10	—	—	—	—
Quincy	23,899	7	1	14.28	42.84	—	—	—
Waltham	23,481	10	2	20.00	10.00	—	—	—
Pittsfield	21,766	4	—	75.00	25.00	—	—	50.00
Brookline	19,935	6	—	16.67	16.67	—	—	—
Chicopee	19,167	7	4	14.28	14.28	—	—	—
Medford	18,244	4	2	—	—	—	—	—
Newburyport	14,478	13	4	7.69	15.38	—	7.69	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 3,062; under five years of age 889; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whoop-

ing cough, erysipelas, fevers and consumption) 667, acute lung diseases 603, smallpox 6, measles 12, diphtheria and croup 94, cerebro-spinal meningitis 20, diarrheal diseases 49, whooping cough 20, erysipelas 19, consumption 367, scarlet fever 47, typhoid fever 27.

From whooping cough, New York, 5, Baltimore, 3, Pittsburg, 3, Philadelphia, 2, Providence, Boston, Worcester, Chelsea, Malden, Chicopee and Springfield, 1 each. From cerebro-spinal meningitis, New York, 5, Baltimore, 3, Boston, 2, Somerville, 2, Pittsburg, Providence, Lowell, Gloucester, Everett, North Adams, Clinton, and Fitchburg, 1 each. measles, New York, 6, Pittsburg, 3, Boston, 2, Lawrence, 1. From scarlet fever, New York, 29, Philadelphia, 9, Pittsburg, 3, Boston, 5, Brockton, 1. From typhoid fever, New York, 10, Pittsburg, 9, Philadelphia, 3, Providence, 1, Lowell, 2, Fall River and Newburyport, 1 each. From smallpox, 6 cases in New York City.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending March 2d, the death rate was 215. Deaths reported, 4,858; acute diseases of the respiratory organs, (London) 501, whooping cough 129, diphtheria 62, measles 109, fever 25, diarrhea 47, scarlet fever 23.

The death rates ranged from 14.1 in Oldham to 38.2, in Plymouth, Birkenhead, 22.7, Birmingham, 21.4, Blackburn, 21.7, Bolton, 19.1, Bradford, 19.1, Brighton, 19.2, Bristol, 24.7, Cardiff, 19.8, Croyden, 15.5, Derby, 18.1, Halifax, 25.4, Hull, 22.3, Leeds, 22.2, Leicester, 13.9, Liverpool, 3.10, London, 20.9, Manchester, 22.8, Norwich, 17.0, Nottingham, 22.0, Portsmouth, 21.2, Preston, 16.1, Salford. 22.6, Swansea, 24.3, West Ham, 16.9, Wolverhampton, 26.0.

METEOROLOGICAL RECORD.

For the week ending March 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...10	30.38	34	39	30	79	68	74	N.E.	E.	18	21	O.	O.	.01
M..11	29.61	40	48	32		93	96	E.	N.W.	24	14	R.	*O.	194
T...12	29.65	38	42	34	67	72	70	W.	W.	20	14	O.	C.	—
W.13	29.96	37	43	31	51	66	58	N.W.	E.	16	6	C.	O.	—
T...14	29.82	34	38	31	91	79	85	N.E.	N.E.	12	8	N.	O.	.14
F..15	29.82	32	35	30	78	79	78	N.	N.E.	6	5	O.	N.	T
S...16	29.90	34	38	31	83	95	89	N.	N.W.	6	6	O.	N.	T
☞	29.88		40	31			78							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

SOCIETY NOTICES.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY. — The Surgical Section will meet at the Medical Library, Number 8, The Fenway, on Wednesday evening, April 3, 1901, at 8.15 o'clock.

Papers: "A Case of Fracture of Cervical Vertebræ. Operation. Recovery."

"A Case of Hemorrhage from the Middle Meningeal Artery. Operation. Recovery." Both cases reported by Dr. S. J. Mixter.

"Two Cases of Operation for Ruptured Aneurism of the Abdominal Aorta." By Dr. J. C. Munro.

"A Case of Intussusception in a Girl of Sixteen." By Dr. F. G. Balch.

F. G. BALCH, M.D., Secretary,
279 Clarendon Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the society will be held in Sprague Hall, Medical Library Building, Fenway, on Monday, April 1st, at 8.15 P.M. Subject, "Inebriety."

Paper, by Dr. V. A. Ellsworth: "Treatment of Delirium Tremens."

To take part in the discussion: Dr. J. Frank Perry, Dr. Charles E. Woodbury, Dr. Owen Copp, Dr. H. G. Beyer, Dr. George A. Sargent, Dr. F. M. Johnson, Dr. Charles F. Folsom and others.

ARTHUR K. STONE, M.D., Secretary,
657 Boylston Street.

AMERICAN SURGICAL ASSOCIATION. — The American Surgical Association will hold its annual meeting at Baltimore, Maryland, May 7, 8, 9, 1901.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS. — The American Association of Pathologists and Bacteriologists will hold its first Annual Meeting in Boston, April 5, 6, 1901.

AMERICAN LARYNGOLOGICAL ASSOCIATION. — The Twenty-third annual meeting of the Association will be held at New Haven, Conn., Monday, Tuesday and Wednesday, May 27, 28, 29, 1901, under the presidency of Dr. Henry L. Swain, of New Haven.

RECENT DEATHS.

DR. JOHN SARGENT, the oldest physician in Jefferson County, died March 19th, at his home in Woodville, N. Y., at the age of eighty-seven.

DR. G. W. C. WREN, aged twenty-seven years, of the house-staff of St. Vincent's Hospital, New York, died in the hospital on March 23d, of typhoid fever.

DR. HUGO A. LEVISON, a promising young New York physician, died on March 17. He was graduated from the College of Physicians and Surgeons, New York, and afterwards pursued a course of post-graduate study in Europe. At the time of his death he was connected with the Vanderbilt Clinic, the West Side German Dispensary, and the outdoor department of Roosevelt Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Tuberculosis in Pennsylvania. Guy Hinsdale, A.M., M.D., Philadelphia.

Surgical Operations in Hospitals for the Insane. By William Mabon, M.D. Reprint. 1900.

Contribution to the Therapy of Encephalocele. By Carl Beck, M.D., New York. Reprint. 1900.

Transactions of the American Climatological Association for the Year 1900. Vol. XVI. Philadelphia. 1900.

Two Hundred and Thirty-seven Consecutive Abdominal Sections. By Charles Gilbert Davis, M.D., Chicago. Reprint.

The Circulation in the Nervous System. By Herman Gasser, M.D., Platteville, Wisconsin. Journal Publishing Co. 1901.

Tuberculosis, and How to Combat It. Prize Essay. By S. A. Knopf, M.D., New York. New York: M. Friestack. 1901.

Case of Gastric Carcinoma, Treated Successfully with Platinic Chloride. By John Murray, M.D., Carbon Hill, Ill. Reprint.

Hypnotism and Suggestion. In Therapeutics, Education and Reform. By R. Osgood Mason, A.M., M.D. New York: Henry Holt & Co. 1901.

Chloroform. A Manual for Students and Practitioners. By Edward Laurie, M. B., Edin., M.R.C.S., Eng. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1901.

Diet and Food, Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D., Oxon., F.R.C.P. Third edition, illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Hypnotism. A Complete System of Method, Application and Use, Prepared for the Self-Instruction of the Medical Profession. By L. W. DeLawrence, Instructor at the School of Hypnotism, etc., Pittsburg. Illustrated. The Henneberry Co. 1901.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By Charles Harrington, M.D., Assistant Professor of Hygiene in Medical School of Harvard University. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Aix-la-Chappelle (aachen) as a Health Resort. By Drs. Alexander, Beissel, Brandis, Goldstein, Mayer, Rademaker, Schumacher and Thissen, of Aix-la-Chappelle. English edition translated with the sanction of the Civic Authorities. By James Donelan, M.B., M.C.H., B.A.O. Second print. London: J. & A. Churchill. 1899.

Original Articles.

DISEASES OF THE MYOCARDIUM.[1]

BY HENRY JACKSON, M.D., BOSTON,

Assistant Visiting Physician, Boston City Hospital.

Diseases of the heart may be broadly classified as dependent upon pathological changes in the valves of the heart, or in the muscular substance of the heart, and I wish this evening to draw your attention to the latter class of cases. We find by post-mortem examination that a pretty large number of cases, in which, during life, there have been various signs of improper or insufficient action of the heart, show no evidence of valvular lesion to account for the disturbance in the functions of the heart. Many so-called "cardiac cases," presenting during life all the signs of heart disease, show no valvular lesion, and the primary cause of the disturbance may lie far removed from the heart.

Further, in all forms of acute infectious disease, though more markedly in some, as diphtheria and typhoid fever, than in others, degeneration of the heart muscle may lead to weakness of the action of the heart, a symptom which in the individual case may far outweigh in importance any symptoms directly dependent upon the specific disease which has caused the heart failure. But this evening we wish to speak of chronic forms of disease of the myocardium which give rise to a train of symptoms properly spoken of as heart disease.

We recognize still more the value of an accurate diagnosis as to the condition of the muscular portion of the heart, when we consider that in the majority of cases valvular disease of the heart becomes of importance to the individual affected only when and in so far as the myocardium is affected, and the conservative hypertrophy, compensation, gives way to the condition known as non-compensation. Exceptions to this general rule occur, of course, in acute malignant valvular disease, and in disease of the valves which causes a roughening of the surface, which may form the nidus for the formation of emboli of dangerous import to the patient. Valvular disease in itself may exist for years without giving rise to symptoms which endanger the health or life of the patient; whereas dilatation of the heart, accompanied by irregular or intermittent action, indicates that the health of the patient is seriously impaired, whether the disturbance is dependent upon some long-standing valvular lesion or upon some pathological process outside of the heart. In the latter instance the patient has already reached the danger line, and in order to enable the patient to carry on his usual work we must, by appropriate treatment, strengthen the heart so that the weakened muscle may be able to carry on its work.

Disease of the myocardium does not receive in our textbooks the important consideration which it deserves, this branch of heart disease being summarily despatched, while many chapters are written on the accurate differential diagnosis of the various valvular lesions, and this, too, when we know that the diagnosis is not seldom proved to be wrong by the pathologist.

Even in the consideration of a case of valvular disease the important points in the treatment and management of the individual case are not, What is the lesion? but, what effect has that lesion produced upon the heart itself, namely, the size of the heart? Is hypertrophy or dilatation the leading factor in causing enlargement of the heart? Is the action regular, and what is the character of the pulse wave?

The discovery of the probable existence of an organic valvular lesion must, of course, indicate to us that rigid rules are to be defined as to the course of life to be followed by our patient; but this fact in itself by no means proves that the patient must consider himself as an invalid or even withdraw from his usual active and, perhaps, arduous labors. Further, we must bear in mind that the existence of a murmur does not necessarily imply the presence of an organic valvular lesion. In the first place we have the many instances of the so-called "hemic" or functional murmurs. These cases form a large class in the individuals who consult us for heart trouble, in that, in anemic persons especially, we see so prominently dyspnea, palpitation, cardiac pain and rapidity of action — all symptoms associated in the mind of the laity with heart disease, and too often in the mind of physicians. In such cases, careful diagnosis as to the size of the heart, and proof that the heart is capable of doing a proper or sufficient amount of work, show us that the alarming symptoms are dependent upon some functional disturbance of the heart, and not upon organic disease of the valves or myocardium.

In the second place, murmurs are frequently heard in disease of the myocardium where no valvular lesions are found post mortem; this applies, in my experience, to murmurs heard in the mitral and tricuspid areas. The murmurs heard in such cases are not comparable to hemic murmurs, in that they indicate a real regurgitation dependent upon non-closure of the valves, but the failure of the valves to close is dependent upon a relative insufficiency of the valves; with the dilatation of the ventricle, the ring of the valvular orifice is enlarged, and the valve curtains that formerly sufficed to close the opening are no longer capable of meeting across the enlarged area, and so a leak occurs.

Therefore, in the consideration of a case of heart disease, two prominent facts should always be before us: (1) That heart disease does not mean valvular disease, and (2) that murmurs evidently pathognomonic of regurgitation do not prove the existence of organic disease of the valve curtains.

Pathologically, diseases of the myocardium may be classified under the following heads: (1) Disturbance of the circulation; (2) inflammatory processes; (3) degeneration; (4) various new

[1] Read before the Boston Society for Medical Improvement, February 4, 1901.

formations — tumors; (5) hypertrophy and dilatation.

I intend this evening to speak only of the changes which give rise to symptoms which produce the clinical picture of "heart disease."

(1) *Disturbances of the circulation.* — Local anemia, dependent upon stoppage of one of the branches of the coronary arteries, is always of serious import in that these are terminal arteries. The usual pathological cause is sclerosis, calcification and thrombosis, this being the natural sequence of events. If the disturbance takes place near the beginning of the artery, large areas may be affected and sudden death may occur. Where sudden death occurs without other demonstrable cause, it is always important to examine with care the coronary arteries in search of embolism or thrombosis. If the closure be more gradual, and the artery affected of smaller size, we have as the result a gradual degeneration of the muscles supplied by that artery, and the formation of a fibrous tissue which in time causes a weakness of the heart wall, and may lead to the so-called aneurism of the heart substance. If the closure be sudden of the smaller branches, we may have acute softening of the heart muscle and rupture. I have seen, in consultation, a lady who was suddenly awakened at night by a sharp pain in the cardiac area. When I saw her the next day there was much pain, a weak, irregular heart action, with feeble pulse; only a portion of the cardiac beats produced a pulsation at the wrist. Three days later she died suddenly, and the pericardium was found filled with blood; the heart was ruptured in two places, and there was found a complete stoppage of the left coronary artery.

Again we may have, as the result of embolism or thrombosis of the smaller branches of the coronary arteries, the formation of a hemorrhagic infraction, which in turn may be absorbed and give rise to a chronic localized myocarditis, with the formation of cicatricial tissue in place of the destroyed muscular tissue, this being one of the causes of aneurism of the heart. Such cases have been admitted to my wards with all the signs and symptoms of chronic heart disease.

(2) *Inflammatory processes.* — In acute parenchymatous disease we find the pathological cause of the disturbance associated with many acute infectious diseases. Purulent myocarditis may be dependent upon the ordinary pus-producing bacteria, as seen in sepsis, or may be due to the gonococcus, as in a unique case reported by Dr. Councilman, in which sudden death occurred from rupture of the heart. Chronic fibrous myocarditis may lead to a gradual weakening of the heart by the replacing of the muscular substance by the newly formed fibrous tissue; the essential cause of such a process usually lies in sclerosis of the coronary arteries, as already described.

(3) *Degeneration.* — Under the head of what Orth calls "regressive disturbance of nutrition," we place simple atrophy and brown atrophy, pathological processes which possess but little clinical interest. Of great importance is fatty degeneration, a condition usually found to a greater or less degree on microscopic examination of all cases of dilatation of the heart.

(4) *Tumors.* — Tumors may be varied, but are rare, and when present do not usually give a picture of chronic heart disease, with the single exception of gummata; cases of syphilis of the heart have come under my notice in individual practice or consultation, which presented the usual symptoms of heart disease.

(5) *Hypertrophy and dilatation.* — The conditions just mentioned are those which may, and occasionally do, give rise to symptoms classified as "cardiac," presenting a picture of heart disease, broadly speaking; but under the pathological classification of hypertrophy and dilatation we find the vast number of cases which during life have presented all the classical features of heart disease — dyspnea, edema, weak and rapid pulse with gradual failure — in which the question arises whether our patient be suffering from valvular disease, or some disease of the myocardium, a condition for which I prefer the name "parietal disease of the heart," as not limiting us in diagnosis to any one pathological condition, as the cause of the disturbance may be varied.

Hypertrophy is dependent upon increase in size of each individual muscular fibre, and dilatation is due to enlargement of the cavities. With the increase in size of the muscular fibres, we have, as I have stated, in most cases more or less fatty degeneration of the individual fibres. Pathologically and clinically the two conditions go hand in hand, a certain degree of dilatation being usually associated with hypertrophy. Clinically it is of much importance to bear in mind that, when by percussion we find that the heart area is enlarged, we have already a certain degree of dilatation of the cavities. Hypertrophy is conservative, the index of nature's effort to overcome the obstruction which interferes with the proper action of the heart; whereas dilatation is evidence that the time is coming when the heart muscle will fail to respond to the call for extra work made upon it. So long as hypertrophy predominates over dilatation, we have "compensation."

The normal adult heart may be considered as weighing from 270–310 grammes, the size varying within certain limits with the age and size of the individual.

I wish to draw your attention to some of the most important factors causative of hypertrophy and dilatation, always bearing in mind that this condition is not a disease in itself, but is the result of various pathological conditions, often far removed from the heart itself.

Clinically, we recognize hypertrophy by the strength of the pulse, the heaving of the apex beat, and the force of the heart sounds; note, I do not say by the size of the cardiac dullness, as this bears no relation at all to the thickness of the muscular walls of the heart. Percussion of the heart area gives no data to determine the amount of hypertrophy, for if the ventricle be increased in thickness half a centimetre, we have a great increase

in the muscular substance; whereas an increase in the area of cardiac dullness of this extent would be scarcely perceptible. As soon as the area of cardiac dullness is perceptibly increased to the right or left, we have already an increase in the size of the ventricle. The recognition of hypertrophy is not of such importance to the individual as dilatation, as his safety lies in hypertrophy, whereas in dilatation we have a sign which may threaten his life.

By percussion we determine the size of the heart, while by auscultation and by the character of the pulse we determine whether the hypertrophy or the dilatation be the predominate factor. By auscultation we find in dilatation that the normal booming character of the heart sounds is lost; the sounds are often described as "valvular," whatever that may mean. A marked sign of cardiac weakness is found in reduplication of the sounds, a condition well described as the gallop rhythm, as this term expresses exactly what we hear; the normal sound of lub-dub is replaced by the abnormal sound lub-a-dub. We often find that after the proper use of digitalis, the gallop rhythm entirely disappears, to appear again only when the heart muscle no longer responds properly to the work it is called upon to perform. The pulse is weak, rapid, irregular or intermittent; irregularity of rate and rhythm is of far greater importance as an index of weakness of the heart than occasional intermittency.

The most important condition indicative of cardiac weakness is met with when there is a marked discrepancy between the number of beats of the heart and the pulsation transmitted to the radial artery. Though this may be spoken of as the acme of cardiac weakness, it is a sign which has apparently received but little attention from writers on diseases of the heart. It may be seen not only in marked dilatation of the cavities of the heart, but also in advanced degeneration of the heart muscle, the result of acute infectious diseases. I have seen this phenomenon in typhoid fever, in diphtheria, and in many cases of advanced heart disease with great dilatation of the cavities. I have, within a few weeks, seen a lady with excessive dilatation: the pulse was 80–90 per minute, the apex beat 130–140 per minute.

The causes of enlargement of the heart may lie within the heart itself, or outside of the heart. Taking up the first factors we have: (1) Valvular disease; (2) diseases of heart wall, including chronic myocarditis; (3) new growth in the heart.

In this paper I do not intend to speak of the effects of valvular disease upon the heart.

Howard, in his article upon hypertrophy of the heart, found in 100 cases at autopsy that valvular disease was the etiological factor in only 13, or 12% of the total number. Some years ago I examined the autopsy records of the Boston City Hospital; taking 100 consecutive cases where there was disease of the heart, I found that in 75 cases where the weight of the heart was given, that valvular disease was the cause of the enlargement in 22 or nearly 30%, a much larger proportion than Howard found, yet leaving many cases where the disturbance lay without the heart.

The causes outside of the heart may be: (1) Pericardial adhesions; (2) disease of the kidneys; (3) chronic pulmonary disease; (4) actions of drugs and poisons, especially alcohol; (5) overwork, the so-called "soldier's heart;" (6) a few cases in which the etiology is obscure; (7) last, and by far most important, arteriosclerosis, arterio capillary fibrosis.

(1) *Pericardial adhesions.*—In chronic fibrous pericarditis with adhesions, we have a most potent factor in causing enlargement of the heart. In my list of 100 cases from the City Hospital were 5 cases dependent upon adherent pericardium, and in all the heart was enormous, the weight being respectively 930, 900, 1,300, 1,090 and 800 grammes; in 3 cases there was in addition some valvular disease. In all of the cases there were marked symptoms of cardiac failure; great dyspnea, cyanosis, edema; in each instance the heart was found to be much enlarged and its action was weak and irregular. Howard reports 8 cases in 105 of enlargement due to adherent pericardium.

(2) *Diseases of kidney.*—In my series of 100 cases I have 5 cases of enlargement of the heart dependent upon renal disease, in which there was no general arteriosclerosis, and no disease of the coronary arteries to cause the enlargement. These cases are of far less importance than the large number of cases in which there is general arteriosclerosis with more or less secondary disease of the kidneys.

(3) *Chronic pulmonary disease.*—The enlargement due to chronic pulmonary disease is limited to the right heart, and the symptoms are usually marked by those dependent upon the primary disease. I have seen in private practice such a case in which the dilatation of the heart caused the most prominent symptoms. A man of sixty came to my office suffering from extreme dyspnea; he was cyanotic; there was marked pulsation of the vessels of the neck, enlargement of the right side of the heart and a loud murmur in the tricuspid area. There was consolidation of half the right lung. Under the exhibition of digitalis the venous pulse and tricuspid murmur disappeared, and the man returned to work for two years.

(4) *Systemic poisons.*—Alcohol, and perhaps the excessive use of tobacco, though the latter is much more apt to give rise to functional disturbances. Alcohol used to excess plays an important rôle in the etiology of enlargement of the heart. In excessive drinkers it is not rare to find symptoms pointing to great enlargement of the heart with entire loss of compensatory hypertrophy. Dyspnea is often extreme with cyanosis and general anasarca, independent of lesions in any organs other than the heart.

Aufrecht has called attention to this disease, giving the name "alcoholic myocarditis." He considers the first lesion to be a dilatation of the cavities of the heart, the first pathological lesion

being interstitial inflammation with fragmentation of the muscular fibres. In my review of the hospital cases, I found 3 well marked cases. In all these was marked enlargement of the heart; in none of the cases was there any anatomical lesion found sufficient to account for the increase in size, no arterial, renal or valvular disease.

CASE I. A man, age twenty-nine. Great alcoholic excess. For several weeks dyspnea and cough. Examination showed a pale, fat, cyanotic man. The heart was much enlarged to the right and left; it was irregular and intermittent; no murmurs. The heart weighed 575 grammes. Dr. Councilman added the following note to the autopsy: "This case is obscure. Death has apparently been the result of a loading of a weak heart." There was no anatomical lesion so far as could be ascertained, of heart hypertrophy. It is possible it was hypertrophy from alcohol, similar to the "Munich heart." In the other similar cases the hearts weighed, respectively 450 and 590 grammes.

Clinically it is not unusual in hard drinkers to find a moderate grade of cyanosis, some dyspnea and enlargement of the cardiac area, with a corresponding weakness of the action of the heart. It is probable that the majority of such cases are the result of such a pathological lesion as I have described, a dilatation of the cavities of the heart, rather than upon fatty degeneration of the muscle. The diagnosis of "fatty heart" is common, but pathological records do not confirm the supposed frequency of this lesion.

Fraentzel is inclined to entirely deny that fatty overgrowth of the heart, the so-called infiltration, has any importance in the etiology of cardiac disease. A marked overgrowth of fat is frequently found at autopsy in individuals who have given no signs of insufficiency of the heart during life.

(5) *Hypertrophied heart from overwork.* — Under this head we class cases which present symptoms of disturbance in the action of the heart, apparently the result of excessive bodily work. The matter was first brought to the attention of the profession after the Rebellion, the name "soldier's heart" being given by Weir Mitchell and Da Costa. Similar cases were seen in Germany after the Franco-Prussian War. Howard gives 5 cases of this category in his list of 105 cases of hypertrophy of the heart.

I have had under my care at the hospital a man of forty-five years, who had done especially laborious work; no history of alcohol; no renal or pulmonary disease. He had great dilatation, rapid, irregular heart, and finally death from pulmonary infections. No arteriosclerosis.

(6) *Cases obscure in etiology.* — As in these cases of "overwork," so there are others in which enlargement of the heart is found without well marked pathological cause. Hydremic, general plethora and disturbance of the nerves which regulate the action of the heart may be called up to explain the condition, all of the cause being, perhaps, rather suggestive than capable of demonstration. The enlarged heart of the Munich beer drinkers may, perhaps, be more properly classified under "Plethora" than under the cases of direct alcoholic poisoning, as the disease seems to be dependent rather upon the excessive amount of fluid ingested than upon the small amount of alcohol which that fluid contains.

The enlargement in Graves' disease in exophthalmic goitre, may properly be cited as an instance of the result of an interference with the cardionervous supply. For several years I have had under observation a case of this disease with a considerable enlargement of the heart and the attendant symptoms of weakness of the heart.

A very interesting example of cases of this indefinite etiology has come under my personal observation. A lady, of fifty odd years, had been for many years short of breath on exertion. During the last year of her life she suffered severely, and for many months before her death was unable to lie down at night, and slept in an armchair. She was stout, of florid complexion; the smaller veins were prominent. On the slightest exertion her respiration was labored. She was of the so-called "apoplectic type." The heart was much enlarged and its action weak and irregular; for many months before her death there was great edema of the legs, so that serum constantly oozed from the broken skin. A more marked picture of the extreme sufferings of "heart disease" it is difficult to imagine. The autopsy was made by Dr. Councilman, and I give you the notes which bear upon the subject in hand: "Body small." Edema of lower extremities. Subcutaneous fat abundant. Liver large with corset furrow well marked. In each pleural cavity a small amount of slightly blood-stained fluid. Lungs somewhat emphysematous, and a slight bronchitis in lower lobes. Both layers of pericardium smooth. Heart enormously enlarged; the cavities distended with fluid blood; weight 720 grammes (normal 280 for women of this size). The entire heart hypertrophied and dilated, especially the left side. Aortic valve competent; the orifices of the heart share in the dilitation; coronary arteries normal, splenic, mesenteric and renal arteries normal.

Microscopic examination. — Diffuse fatty degeneration of the heart. Diffuse increase in the connective tissue and a slight fatty degeneration of the kidney.

Dr. Councilman adds: "I am somewhat at a loss to explain the excessive hypertrophy of the heart. There is not any valvular lesion sufficient to cause it: there is no arteriosclerosis. There is no more disease of the kidney than we would expect in a person of that age. It is possible that the hypertrophy might be due to excessive action of the heart brought about by nervous excitability, or possibly to a condition of plethora. It is one of those rare cases of heart hypertrophy for which no sufficient mechanical cause can be found."

(7) *Arteriosclerosis.* — We come now to the last, and by far the most important, cause of enlargement of the heart, to a cause explanatory of a large proportion of cases classified clinically as "cardiac," "weak heart," "cardiorenal," or "fatty heart," namely arteriosclerosis.

In my list of 100 autopsies I find a record of 32 cases of disease of the heart dependent upon arteriosclerosis, and in only 4 was the weight of the heart under 400 grammes. Arterio capillary fibrosis, a thickening of the intima and middle coat of the smaller arteries, whereby their lumen is diminished in size and the work of the heart much increased. Physiologically, in old age there is a certain grade of this process which in youth is pathological. It is when the disease appears in youth that it becomes of importance and gives rise to the axiom, "That a man is as old as his arteries."

As to the etiology of the disease, in one-third of the cases there is a history of great alcoholic excess, but in 11 of the 32 cases the statement is made that no apparent cause for the disease was found. It is noteworthy that articular rheumatism had preceded the onset of symptoms in only 2 cases; in neither was there valvular disease, as no valvular cases are reported in the class of heart disease dependent upon arteriosclerosis.

As to age, these cases do not correspond with Howard's, who reports that the greater proportion of his cases of arteriosclerosis were in the prime of life, where the age is given in my cases the following data may be cited: Twenty to thirty, 3 cases; thirty to forty, 4 cases; forty to fifty, 3 cases; fifty to sixty, 9 cases; sixty to seventy, 6 cases. In all of the younger cases alcoholic excess was a marked feature in the probable etiological factors. In 4 of the cases dilatation is not mentioned: in the others there was general hypertrophy and dilatation of both sides of the heart.

In 5 cases there was such a marked dilatation of the cavities that there was a relative insufficiency of the valves demonstrable at post-mortem examination. In all of these cases there were loud murmurs heard during life.

The following is a brief history of one of these cases:

Man, age forty-nine. Hard drinker. For many months he had suffered from dyspnea; marked edema of the extremities; heart enlarged 1½ inches to the left of the nipple line, and 1 inch to the right of the sternum. Systolic murmur at the apex. Pulse irregular and intermittent. Nine months later he again entered the hospital, when his symptoms had increased to severe orthopnea with deep cyanosis. There was a loud systolic murmur at the apex transmitted to the axilla and a double murmur at the base in the aortic area. The action of the heart was very irregular and intermittent. In the urine was a trace of albumin with a few casts. He suffered from dyspnea for three months and died.

Autopsy. — Heart, 820 grammes. General hypertrophy and dilatation; relative insufficiency of the mitral and aortic valves; chronic passive congestion of the kidneys.

This case may be well cited a typical, though extreme case of arteriosclerosis. The man was a hard drinker, no history of rheumatism, dyspnea, increasing to orthopnea, cyanosis, great enlargement of the heart and death. It is a good example of the cases in which murmurs are heard, and yet there is no valvular lesion.

Several of the cases recorded died of cerebral hemorrhage or entered unconscious: all who were in a condition to give an intelligent account of their symptoms gave a history of shortness of breath or dyspnea, extending over a considerable period; in several instances for years. Several of the cases were cyanotic, and orthopnea was noted so severe that the patients were unable to lie down in bed. In half the cases there was marked edema, and in several general anasarca. Associated with the dyspnea were the usual symptoms of cough, expectoration — at times bloody — and the presence of râles in the chest indicative of bronchitis.

Examination of the heart. — It was enlarged in 16 cases according to clinical observation. In 6 cases the heart area is described as normal. In many of the cases the action was weak and the heart markedly irregular and intermittent. The pulse was usually weak, rapid, intermittent and irregular, though in 8 cases it is mentioned as regular and of good strength. Murmurs were detected in 10 of the cases. In 7 of these cases the murmur was situated at the apex and was transmitted into the axilla, as is the case in the murmur of mitral regurgitation. In none of these cases was there found, post mortem, a pathological condition explanatory of the cause of the murmur. In one case there was a systolic murmur in the aortic area where post-mortem there was found a slight sclerosis of the aortic valve which probably gave rise to a certain degree of constriction. In 2 cases a double murmur was heard at the aortic area and post-mortem the aortic valve was demonstrated to be relatively insufficient, as a result of the dilatation of the left side of the heart. As murmurs indicative of imperfect closure of the valves were heard in one-third of the cases of arteriosclerosis, it is evident that the presence of such murmurs cannot be offered as evidence of structural lesions of the valves.

In 16 of the cases a trace of albumin with casts was found in the urine. In 14 of the cases there was structural disease of the kidney, consisting of chronic diffuse nephritis of moderate grade in the majority of the cases, while in 3 instances a small granular kidney was found post mortem. The immediate cause of death was cutaneous hemorrhage in 4 cases, and lobar pneumonia causing death in 4 other cases. In 9 cases the essential symptoms were dyspnea, goitre, cyanosis and edema. These latter cases are of course the one which interest us as clinicians.

In only a few of the cases are recorded accurate data as to the condition of the arteries; when the arteries are mentioned they are spoken of as hard, sclerotic, tortuous. From these data we may draw the picture of arteriosclerosis as follows: A man of forty years or more, though younger cases are seen. Alcohol used to excess. No rheumatism; dyspnea, cough, cyanosis, edema of long standing; enlarged heart, action feeble, irregular and intermittent pulse, murmurs present or not; edema;

trace of albumin with casts. The arteries are hardened, tense, tortuous, and the pulse usually of high tension.

As to treatment, several of the cases had been in the hospital previous to their fatal illness, and had then improved greatly in all respects after the exhibition of digitalis, cathartics, diuretics, and especially rest in bed.

In arteriosclerosis we find, as a rule, a much greater enlargement of the heart than in valvular disease. In 27 cases of arteriosclerosis, out of the whole series of 32, we find that on the average the weight is greater than in diseases dependent upon pathological defect of the valves. Twelve hearts weighed more than 500 grammes, and in 12 instances the heart weighed over 550 grammes, reaching the enormous weight of 800 grammes or more in 2 instances. In only 3 instances did the weight of the heart exceed 550 grammes in enlargement due to valvular disease, uncomplicated by pericarditis.

THE CONDITION OF THE MYOCARDIUM AS AFFECTING CARDIAC MURMURS.*

BY H. D. ARNOLD, M. D., BOSTON.

Physician to Out-Patients, Boston City Hospital; Professor of Clinical Medicine, Tufts College Medical School.

THE importance of the condition of the myocardium in valvular disease of the heart is, I believe, generally recognized by the medical profession. We all know that the gravity of a case depends not alone on the valve lesion itself, but on the extent to which compensation has been established or is capable of being established by the myocardium. Yet the average practitioner is too apt to rest satisfied if, by discovering a murmur, he is able to point out the site of the lesion and can give an anatomical name to the disease. Fortunately for both patient and physician, the heart generally has wonderful recuperative powers, if given half a chance. Rest, with or without medication, — and sometimes in spite of bad meditation, — furnishes the opportunity; and we take credit to ourselves for an improvement which was due to Nature, and neither to our thorough understanding of the condition, nor to an intelligent application of remedies.

If by accurate percussion you determine the area of the heart, if by inspection and palpation you learn its strength and its regularity of action, if you carefully observe the characteristics of the pulse, if you examine the lungs, liver, kidneys, and extremities for evidence of passive congestion, and if you think logically and intelligently about these physical signs and the symptoms learned from the patient, you will understand your case better and treat it more intelligently than if you depend solely or chiefly on auscultation of the heart. And when you auscult the heart it is of even more importance to rightly interpret the cardiac sounds than to detect the murmurs. In fact, an understanding of the condition of the myocardium is the key to the situation.

Nevertheless, the right interpretation of cardiac murmurs is a matter of great importance, and I invite your attention to a consideration of this subject as throwing additional light on the state of the myocardium.

It has been demonstrated experimentally[1] that when fluid confined in chambers or tubes passes through an opening into a wider space beyond, the particles of the fluid are thrown into vibration beyond the opening; and if the force of the current is sufficiently strong these vibrations attain an intensity which enables them to be transmitted to the ear, where they become audible as sound. To this sound we give the name murmur. These are the physical conditions which underlie the existence of a cardiac murmur in most if not in all cases. The vibrations originate in the fluid itself, in the wider space beyond the narrower opening, and are not caused by friction between the fluid and the confining walls.[2] Whether a stiffened valve may be thrown into vibration by the current of blood passing over it, and may thus contribute to the sound perceived by the ear, has not yet been experimentally proven, as far as I know, but the peculiar character of some murmurs and their peculiar path of conduction lead me to suspect that such may be the case.

It has been proved that a murmur may be produced in a straight tube, without any narrowing of the lumen, provided the fluid is forced with sufficient velocity. This velocity, however, is greater than that known to be attained by the circulating blood, and this explanation may practically be disregarded in interpreting cardiac murmurs. A lessened density of the fluid enables a murmur to be produced with less velocity. It is possible that this fact may have something to do with the production of anemic murmurs, but it has not yet been proved that the density of the blood or its velocity in cases of anemia come within the limits required by the experiments.

It is reasonably safe to assume, then, that when we hear a cardiac murmur the blood is passing through some opening into a chamber beyond which has a larger diameter than that opening. A narrowing of any of the valvular orifices presents this condition for the blood in its onward progress. A leakage through any of the valves furnishes the condition in a reversed direction. In the aortic area a widening of the aorta beyond the orifice furnishes the necessary condition, even if the aortic valve is normal. I believe it is the dilatation of the aorta, accompanying arteriosclerotic changes, rather than the roughening of the lining of the valve and blood vessel, which accounts for the frequency of the aortic systolic murmur beyond middle life, a murmur which is so seldom explained at the autopsy by a true stenosis of the aortic valve.

Regurgitant murmurs may be caused at any of the valve orifices without disease of the valve itself, provided the orifice is sufficiently dilated to prevent the proper apposition of the valve curtains. We shall see later that this is a common

* Read before the Boston Society for Medical Improvement, February 4, 1901.

occurrence at the mitral valve. At the aortic valve, however, the tissues surrounding the orifice are so strong that they do not yield readily, and as a rule an aortic regurgitant murmur indicates disease of the valve curtains. Likewise a presystolic murmur at or near the apex indicates disease of the mitral valve, except in the rare instances where it is caused by free aortic regurgitation. What has been said of the aortic and mitral valves applies respectively to the pulmonary and tricuspid valves in the rarer cases in which they are concerned.

Such are the conditions under which cardiac murmurs arise. Their existence always indicates an abnormal though not necessarily a diseased condition. The point of maximum intensity of the murmur and its area of distribution enable us to locate the site of the trouble with some accuracy. In our present enquiry, however, we wish to know what further light murmurs may throw on the cardiac condition.

The loudness of a murmur is not a satisfactory guide to the seriousness of the lesion. Neither is the quality of the murmur. Yet variations in the intensity of a given murmur from time to time may give us information of the greatest value in estimating the condition of the heart. Under these conditions changes in the intensity of a murmur are to a certain extent a measure of changes in the strength of the cardiac muscle. If, with rest and treatment, a weak, dilated heart develops a murmur which was not audible before, or if a faint murmur becomes louder, it is a favorable sign, for it means stronger heart action and implies the beginning of compensatory hypertrophy. The diminution or disappearance of a murmur may also mean improvement, through the removal of the condition causing the murmur, but it may mean a weakening of the cardiac power. The decision lies in the other evidence obtainable, not in the change in the murmur itself. Even organic murmurs sometimes disappear, especially with improvement of the general cardiac condition, and yet the diseased condition of the valve remains. If you have had good reason to decide that a murmur indicated an organic valve lesion, do not give too favorable a prognosis simply because the murmur disappears, and do not conclude that your diagnosis was necessarily wrong. You must, however, be sure that your reasons for calling the murmur organic were well grounded. It does not mean that the valve is diseased, simply because the characteristics of the murmur are marked, nor is it necessarily organic because it lasts weeks or even months.

Mitral murmurs are much more liable to variation and disappearance than are aortic murmurs. Of all cardiac murmurs, the presystolic murmur of mitral stenosis is the most variable. Yet, once definitely heard, it indicates more surely than any other murmur an incurable valvular lesion. Mitral stenosis, moreover, exists more frequently without any murmur whatever than does any other valvular lesion. These peculiarities depend upon the fact that the force which produces the murmur is derived from the auricle, whose action is weaker than that of the ventricle, and perhaps more variable.

Mitral regurgitant murmurs are the commonest of cardiac murmurs, but their real significance is not always as easily determined as in the case of some other murmurs. Of the latter the aortic diastolic and mitral presystolic clearly indicate valvular disease. The aortic systolic usually indicates aortic stenosis or arteriosclerosis of the aorta. All these conditions are incurable, although a stage of tolerance and comfort may be established. I am leaving out the so-called anemic or hemic murmur heard at the aortic area, because it is almost invariably accompanied by murmurs at other cardiac orifices, or by vascular murmurs, or by marked anemia in such a way as to make the condition clear. The prognosis in this case turns on the cause of the anemia rather than on the cardiac condition, and the murmur generally represents a curable condition. Contrasted with these rather definite indications of other murmurs, we find that a mitral regurgitant murmur may be due to an incurable valvular lesion or to conditions which are perfectly curable. The characteristics of the murmur may be the same in both instances. I have found exceptions to every rule laid down for the distinction of organic and functional murmurs at this orifice, provided the rule was based on the character of the murmur alone. We must take other factors into account, and a decision should be formed only after carefully weighing all the evidence obtainable. Is the mitral regurgitant murmur curable, or is it incurable? That is the question raised by the commonest cardiac murmur. The answer is not always easy.

One source of confusion lies in our failure to fully appreciate the difference between the anatomical relations of the aortic and the mitral valves. We are apt to think of them as differing only in the size of the opening and in the number of cusps to the valve. The aortic valve may be described as mechanical and automatic. The cusps are so shaped that they are brought into close apposition with each other by the mere pressure of the arterial blood. They accurately close the opening, and as the thick, fibrous wall of the base of the aorta does not yield readily to pressure, leakage between the cusps from dilatation of the orifice is of relatively uncommon occurrence. Furthermore, the method of attachment of the cusps to the aortic wall, with the corners higher up than the bellying margin, effectually prevents the edge of the cusp from being forced down beyond the orifice. Regurgitation from this cause occurs only with such extreme blood pressure as will tear the valve from its fastenings. This occurs rarely in the strain of sudden extreme muscular exertion.

The mitral valve differs from the aortic in two important respects: (1) There is a less marked development of fibrous tissue at its ring, and the maintenance of its calibre depends to a considerable extent on the cardiac muscle which surrounds

it. It is therefore much more yielding, and is easily dilatable. (2) The mitral curtains, flexible and lying flat in one plane, would not in themselves offer any resistance to the regurgitation of blood through the mitral orifice, whereas the aortic curtains are so attached as to prevent regurgitation. The prevention of this mitral regurgitation depends on the chordæ tendinæ and the papillary muscles, which act as a set of guys to keep the valve curtains from being forced beyond the orifice. The steadiness of the support of these guys depends on the papillary muscles; for the ventricular wall, to which attachment is made, is constantly moving, and would furnish an unsteady support were it not that the action of the papillary muscles just counterbalances that of the ventricular wall. This nice adjustment between the contractile forces of the ventricular wall and the papillary muscles is essential for the perfect closure of the mitral valve, and its practical importance in accounting for murmurs is shown by the fact that it has been demonstrated [3] experimentally that the papillary muscles show diminished power of contraction, as a result of fatigue, quicker than any other part of the cardiac muscle.

More than this, it has been demonstrated [4] experimentally that the size of the normal mitral valve is considerably smaller in systole than in diastole. In other words, the mitral orifice is compressed and narrowed by the contraction of the muscular wall about it during systole, and this narrowing of the mitral orifice is as essential for the perfect closure of the valve as is any other part of the mechanism. The mechanism for the closure of the mitral valve is not, then, automatic in the sense that we used the term for the aortic valve, where the essential factors all lay in the valve curtains themselves. We may say that the closure of the aortic valve is a matter of fibrous mechanism, while the closure of the mitral valve depends largely on muscular mechanism. The one is rigid, the other is yielding in character.

It becomes clear, then, that a weakened action of the cardiac muscle which failed to narrow the mitral orifice sufficiently, or a weakened action of papillary muscles failing to hold the valve curtains firmly, might either one be a sufficient cause for mitral regurgitation. It is probable that both conditions are acting together in most cases. We can thus demonstrate that a weakened or debilitated condition of the cardiac muscle is a sufficient cause for mitral regurgitation, even when no demonstrable dilatation of the ventricular cavity exists, although dilatation will ensue if the weakness is very marked or is prolonged over a long period.

Such regurgitation at the mitral orifice, due merely to a weakened or debilitated condition of the cardiac muscle, is generally curable, because its cause is generally curable. This is true whether dilatation of the ventricle exists or not. If dilatation has existed a sufficiently long time, a cure can be effected only through the development of hypertrophy. The existence of such hypertrophy need not deter us from pronouncing the cardiac trouble cured. For we have assumed that the cause of the trouble is removed; the heart has returned to a condition in which it performs its functions normally; and there is no apparent reason why it should not continue to do so as long and as well as any normal heart. If we must still call it diseased because somewhat hypertrophied, then we must assume that all athletes have diseased hearts, for in them we shall find the heart always more or less hypertrophied. Although, from its frequent association with disease of the heart, we commonly think of hypertrophy of the heart as a pathological lesion, it is rather a manifestation of the normal physiological power of the heart (like any muscle) to develop in proportion to the amount of exercise it performs, provided it is well nourished. It is to be regarded as a pathological condition rather from the conditions with which it is associated than from its mere existence as such. Mitral regurgitation, then, in debilitated or in dilated hearts may be entirely curable if the cause is curable, though the question evidently depends also on the myocardium and its capabilities.

We have been speaking of cases in which the valve curtains themselves were free from disease. Where these are diseased the condition of the myocardium is of equal or even greater importance, for on it the problem of compensation depends. The amount of damage done to the valve is, of course, a very important factor in the problem. Sometimes the damage is so great that compensation is out of the question. At the other extreme lie the cases in which the post mortem examination shows that an old endocarditis has left some traces of its existence on the valve curtains, but of such slight degree that there is no evidence that they were incompetent, and clinically no evidence of heart trouble existed. The occurrence of these lighter cases brings up the question whether a mitral regurgitant murmur may accompany endocarditis and yet represent a curable condition.

Before answering this question, we must consider the significance of the systolic apex murmur so often heard in acute rheumatism. Does it always mean endocarditis? Does it always mean mitral regurgitation?

When I was a medical student, I was taught that oftentimes the only evidence of an endocarditis in an attack of acute rheumatism is to be found in a systolic murmur at the apex of the heart. This is undoubtedly correct. I was also taught that such a murmur arising in the course of acute rheumatism means endocarditis. This view I have come to consider incorrect. The murmur often does mean endocarditis, but not necessarily.

I find a foot note in my textbook of that time wherein my instructor stated that when this murmur does not exhibit the characteristics of mitral regurgitation, it is to be considered an example of Flint's "Mitral Systolic Non-regurgitant Murmur." This is described by Flint [5] as a systolic murmur, heard within a limited area at the apex,

arising within the ventricle and not at the mitral orifice, and due to the roughness of the endocardial membrane and not to mitral incompetence. Flint says this "is the murmur present in endocarditis." He adds significantly: "This murmur cannot always be discriminated from a feeble mitral regurgitant murmur."

Careful analysis of this view shows that it is based entirely on the area of distribution of the murmur. Because it has not the classical distribution of a mitral regurgitant murmur, namely, to the left axilla and perhaps to the angle of the left scapula, it is argued that it cannot be due to mitral regurgitation, and another theory must be advanced to account for it. The first premise of this argument is wrong. Even a cursory examination of the area of distribution of mitral regurgitant murmurs shows that it may vary widely from the classical description. It need not necessarily be transmitted as far as the axilla. Furthermore, the explanation offered, that it is due to the blood passing over the roughened endocardium, is much less probable than that a mitral regurgitant murmur should have a limited area of distribution. This attempt to account for the murmur is a leap from the frying pan of difficult, but possible, explanation, into the fire of well-nigh impossible theory. For the weight of experimental evidence is against mere roughening of the wall as an adequate explanation of a murmur by friction between the fluid and the wall; and the velocity of the blood within the ventricle itself, before it is forced through the narrower opening of the aorta, is too slight to account for the murmur in any other way. I believe we should distinguish between the facts in cardiodynamics, which have been proved by pathological demonstration and by physical or physiological experiment, and the theories which, though originating in the imagination of some of our greatest medical minds, form an insecure and unreliable foundation on which to base our knowledge of cardiac disease.

The confusion of theory and fact in our mental processes is a serious fault of much of our medical thought; it explains much of our loose and illogical methods of reasoning, and is responsible in part, I believe, for the cloudiness which involves some of the questions of cardiac physics. Because some cases of rheumatism have endocarditis, and because some systolic murmurs at the apex indicate endocarditis, we are too apt to draw the illogical conclusion that in rheumatism all systolic murmurs at the apex mean endocarditis. We forget that the autopsy sometimes fails to confirm this view, and we forget that a systolic murmur with the same characteristics is often found in other diseases, which are not prone to develop endocarditis. These other diseases have, in common with rheumatism, a toxic state of the blood, fever, and general prostration — conditions under which weakness of the cardiac muscle is apt to develop, and in which, therefore, mitral regurgitation may occur without endocarditis or any affection of the valve itself. Many of the systolic apex murmurs heard in rheumatism are, I believe, due to the muscular weakness and relaxation from these causes and not to endocarditis. The indication for treatment is the same in both cases; the need of watchfulness to detect this condition of the myocardium is as great in cardiac weakness as in a mild endocarditis, but the prognosis is different. The lesson to be learned from this view is not that we may neglect watching for murmurs in rheumatism because they may be less serious than we supposed, but that a state of the myocardium as bad as often exists in rheumatism exists in other infectious febrile diseases, and that we should watch the heart as closely in these diseases as we have been taught to do in rheumatism.

With reference to the diagnosis of endocarditis from the murmurs in rheumatism, I wish to quote what Gibson says:[6] "On auscultation there are great possibilities of error. In all febrile conditions, such as so often lead to endocarditis, the heart is apt to undergo dilatation, and not only is there a change in the cardiac sounds, but systolic murmurs are extremely common at the auriculoventricular orifices, along with accentuation of the pulmonary second sound. Such murmurs may obviously be caused by changes in the cardiac walls, or in the papillary muscles, and therefore have no necessary connection with endocarditis; as has already been remarked, reliance upon these murmurs as an indication of endocarditis has rendered most clinical statistics connected with the subject open to the gravest suspicion. It cannot be urged too strongly that the only absolute diagnostic means consists in the appearance of murmurs of obstruction at one or the other of the orifices." . . . "The determination of the probable condition in any given case can only be attained by carefully weighing the whole evidence available, and the possibility that murmurs of incompetence at the venous valves may be due to acute myocarditis must not be overlooked."

We can now answer the questions which we propounded about the systolic apex murmurs in rheumatism. They are not necessarily due to endocarditis. They do mean mitral regurgitation, but not necessarily a diseased valve. As to the question whether a mitral regurgitant murmur may represent a curable condition if accompanying endocarditis, it is conceivable that it may, for we have seen that the amount of endocarditis may be too slight to make the valve incompetent, and yet an accompanying muscular weakness might allow the blood to regurgitate. This condition, however, we cannot distinguish clinically from a case in which the murmur is due to incurable endocarditis, nor from one where we have only muscular relaxation without any endocarditis. Time alone will solve the whole problem of these mitral regurgitant murmurs, and an absolute decision as to their curability should be reserved. More or less probability we may attain by a consideration of all the circumstances, and of these the most important is the condition of the myocardium.

We have been considering mitral regurgitation with reference to its ultimate curability or incurability. This is not the whole problem, for in the

incurable cases we may attain a condition of relative health of the heart which will last for a longer or shorter time — perhaps for years. Whether in an acute attack or an exacerbation we can attain this condition of compensation depends entirely on the capacity of the myocardium.

We have still one class of cardiac murmurs to consider — the so-called functional murmurs. The best definition of a functional murmur is that it is not organic. A murmur due to a physical change in the heart, like valvular disease, is called organic. We can account for it satisfactorily by demonstrable physical change. When we cannot so account for the murmur we call it functional — and then begin to invent theories to explain its occurrence. As we did not find the heart diseased, we theorize that the trouble lies in the blood, but we deceive ourselves if we think we have added anything but an unproved theory to our knowledge by calling it a hemic murmur. When anemia is present we call it an anemic murmur — but that explains nothing. It may yet be proved that such occurrences are caused by some condition of the blood, but in the meantime let us confess that by a functional, hemic or anemic murmur we really mean a murmur which we cannot satisfactorily explain.

In anemia we have a most confused state of affairs as to the murmurs. Anemia is supposed to furnish the most typical examples of purely functional murmurs, and yet many of the murmurs are as clearly organic as in valvular disease. It is well known that in severe anemia the heart may become dilated, and in fatal anemia we may find extreme fatty degeneration as well as dilatation. Murmurs due to these conditions are clearly organic. In less marked conditions the murmurs are generally admitted to have all the characteristics of mitral regurgitation. If there is dilatation, the explanation is easy, and the murmur is a mitral regurgitant murmur and is organic. If there is no demonstrable dilatation it is still mitral regurgitation, I believe, due to the fact that in anemia the heart muscle is poorly nourished and weak and the muscular part of the closure of the orifice is imperfectly performed.

The next grade is where the murmur is systolic but has not the classical distribution of mitral regurgitation. Then comes the grand dispute about anemic murmurs. Because generally [7] heard best at the left base of the heart, they are ascribed to the pulmonary artery. Then the fact that there is no change at the pulmonary orifice is adduced to prove that the trouble lies in the state of the blood itself. The point of maximum intensity is quarrelled over to the fraction of an inch, and then every one admits that it is frequently heard loudest somewhere else.

The trouble lies, it seems to me, in the attempt to gauge these anemic murmurs by imperfect standards. We do not as yet fully understand the path of conduction of murmurs, nor the area of distribution, yet these are the means by which we try to determine where a murmur originates. Until our knowledge on these points is clearer, we should not attempt to dogmatize.

I have spent some little time studying cases of this [8] sort, and two things have been impressed upon me. One is that murmurs which I had every reason to suppose were from mitral regurgitation often had the point of maximum intensity higher up than the apex, along the left border of the heart, and might have an irregular distribution on the chest wall. The other was that I found in anemia murmurs showing every gradation in area of distribution from a clearly recognized mitral regurgitation to what is usually called a typical anemic murmur in the second left interspace. Where shall we draw the line? When do we cease to have mitral regurgitation as an explanation? I am not at all sure that we do. I am inclined to the belief that all the anemic murmurs on the left side of the heart are really due to mitral regurgitation, showing various areas of distribution according to the means by which the vibrations travel from the left auricle to the surface.

This view is as yet far from proven. It is only a working hypothesis. I would prolong the paper too much to attempt to discuss further the reasons for this view. But this much may be said confidently of the anemic or other functional murmurs; that, whatever their cause, the important thing to understand is the state of the myocardium. Is the heart dilated? Is its action strong or weak? These are the essential features to learn, and the conditions that determine treatment.

Whenever a murmur exists, then, it is of great importance to investigate the condition of the myocardium. By so doing we may find the cause of the murmur in an entirely remediable condition of the cardiac muscle, and we may save ourselves the mortification of ascribing it to incurable valvular disease, and we may spare our patient from a life of worry and dread which the latter diagnosis so often inspires. Whether the disease be curable or not, we find in the condition of the myocardium fully as important data on which to base prognosis as is found in the cardiac murmurs. The existence of a murmur gives us in itself little aid in determining the proper line of treatment. That is determined by other factors, chief among which is the condition of the cardiac muscle. Let us not, then, rest content with an examination of the heart for murmurs. That is important, of course. If discovered they throw valuable light on the diagnosis and, to some extent, on the prognosis. But when we have done so much we have only begun the investigation — not ended it; we have only learned that there is something about the heart to investigate; let us investigate it thoroughly, with every means at our command.

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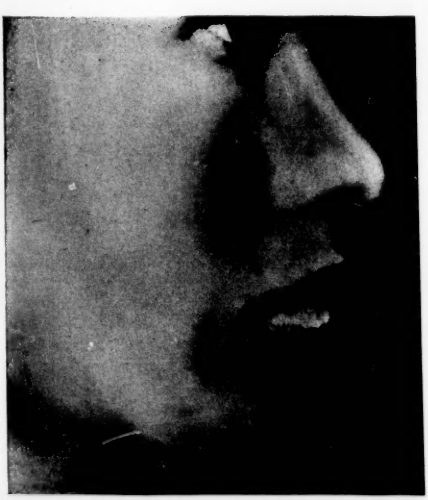
3. Fenwick and Overend. Report on the Contraction of the Papillary Muscles and its Relation to the Production of

FIG. 1.—Epidermoid cancer of the lip before treatment by the x-rays.



FIGS. 2 and 3.—Cuts of photographs taken directly after healing. The induration had wholly disappeared; the lip where the growth had been was without scar and perfectly smooth and soft; it was a little wider on the right side, otherwise there was nothing abnormal in its appearance. Some weeks later this increase in width had diminished so that the cosmetic result was perfectly satisfactory, even better than is shown in the cut. The patient shaved off his moustache the day before the photographs from which these cuts were made, were taken.

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A FURTHER NOTE ON THE TREATMENT OF EPIDERMOID CANCER.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

In a note published in this journal January 17, 1901, I stated that I had treated cases of epidermoid cancer by exposure to the radiation from an excited Crookes' tube, and that these cases had yielded to treatment without accompanying or subsequent pain or irritation.

The results produced by this method of treatment are seen in the accompanying cuts, which are taken from my forthcoming book on the uses of the Roentgen rays, by permission of The Macmillan Company. The photographs were made from one of the patients, whom I presented at the meeting of the Medical Society of the Boston City Hospital, in February last. The diagnosis of epidermoid cancer in this patient was confirmed by Dr. Mallory, pathologist at the Boston City Hospital, to whom a small piece of the growth was submitted. Fig. 1 is a cut of the photograph which was made before exposure to the x-rays; Figs. 2 and 3 from photographs taken after treatment. The induration on the lip extended beyond the affected area shown in the half-tone. The gland under the inferior maxilla, to the right of the symphysis, had been enlarged; but the enlargement disappeared after the lip had healed.

The exposure to the rays lasted usually five minutes, and was given nearly every day for some weeks, but further experience has suggested that so long a period of treatment is unnecessary. The cuts here presented were taken from the smallest growth that I have treated.

This patient, together with others, demonstrated, as I have previously stated, that we have in the radiation from an excited Crookes' tube, in all probability the x-rays themselves, a therapeutic agent which is of value in the treatment of at least superficial cancer in its early stage, and that healing takes place without any caustic action.

In some of my patients the treatment, given nearly every day, was stopped after improvement had well begun; in one patient the treatment given at intervals of a day or two was stopped after a few exposures only, but in all of these cases the improvement steadily continued without renewal of treatment. From this I infer that the rays interfere, probably directly, with the life, whatever it may be, which causes the cancer. Further, as this is accomplished without much difficulty in superficial growths, penetrating to a depth of two centimetres at least, it gives ground for hope that something may be done for patients in whom the disease is deeper seated.

Clinical Department.

REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRELL, M.D., R. W. LOVETT, M.D., AND J. E. GOLDTHWAIT, M.D., BOSTON.

CASE I. MULTIPLE PLEXIFORM FIBROMATA.

S. M., age ten years, entered the hospital November 7, 1899. Her mother was a prostitute, who probably had syphilis. Her father was a mulatto, who died of phthisis. The child was adopted when small. Since then she has had no children's diseases, but has had trouble with her eyes and has had sores about the anus. For seven years she has had increasing swelling and stiffness of left leg. Some pain has accompanied this trouble.

Examination showed a well developed and nourished girl. Her skin presented numerous yellow patches varying from ¼ to ¾ inch in size. And about the anus was more or less scar tissue. Glands were found in both groins. The left knee presented a fusiform swelling, involving the thigh and calf. Some bony thickening of the knee existed, and there was some limitation of motion. A large tumor mass with hard kernels in it involved the popliteal space and pressure over the mass elicited some pain. The left leg was 3 inches longer than the right. The left knee was 4 inches and the left calf 1¾ inches greater in circumference than the right. The left thigh was ¾ inch smaller than the right. The right foot was in an equinus position (Fig. 1).

The child was given iodide of potash, so that by November 20th she was taking 30 grains three times daily. This was omitted December 6th.

December 1st. The patient was etherized and an Esmarch bandage and a tourniquet were applied, the legs being measured both before and after. The measurements of the left leg were considerably lessened after the application, the knee diminishing 1 inch in circumference. The measurements of the right leg were barely altered. On December 12th an incision was made on the outside of the middle of calf and some of the hard masses that had been felt were removed for diagnosis. These were "found to consist of small kernels, resembling sago, in a network or stroma." On December 23d the iodide of potash treatment was started again, increasing doses being given. By January 30, 1900, 150 grains were given daily. On February 10th the iodide was stopped.

On February 28th an incision was made on the inner side of calf, and a dissection was carried

through the superficial fascia and a mass of translucent tissue was removed from between the muscles and about the vessels. The mass was encapsulated as it could be shelled out of its bed. The whole of the mass was not removed, owing to its extent, but the child improved and was discharged relieved on March 21, 1900.

The tissue which was removed was examined by Dr. R. M. Pearce. His report is as follows:

BOSTON, February 28, 1901.

Tissue to be examined consists of fascia, muscle and connective tissues of leg. Throughout the mass are seen small, firm, round or oval, glistening bodies. Upon dissecting the mass these bodies are found to be small tumor masses apparently developing about nerve

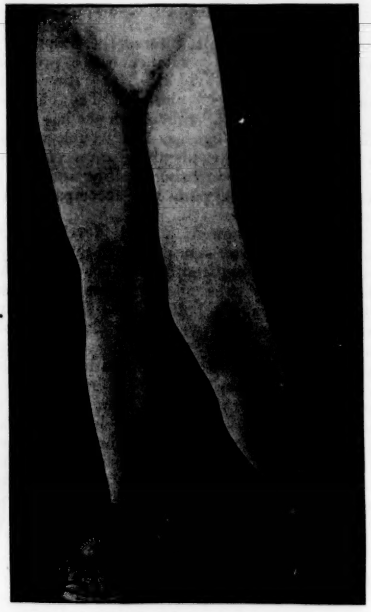

FIG. 1.

bundles, the whole forming a plexiform network with varicosities. These masses are exceedingly firm and opalescent, often spindle-shaped, varying in circumference and covered by a thin capsule. They lie principally in the intermuscular septa (Fig. 2).

Diagnosis. — Multiple fibromata of nerves.

R. M. PEARCE, M.D.

This case belongs to the class described in the literature as neuroma cirsoideum, plexiform neuroma, or Ranken neurom. Many of these cases are evidently described clinically as congenital elephantiasis — congenital hypertrophy[1], etc. The growth is a rare one, but so striking and unusual in character that cases are reported, and since Bruns in 1870 gave the first competent description, some 40 to 50 cases are on record. Bruns[2] himself in a later paper tabulates 42 cases.

A recent paper by Preble and Hektoen[3] gives the summary of reported cases as well as the report of a case with autopsy.

The growth under consideration is even clinically characteristic. If the tumor is single it may be of any size up to the largest; is apt to be flattish in general form with or without overhanging sacklike edges, and it is often lobulated and the skin over it apt to be adherent and changed in character. It may have an increased hair growth, and is often pigmented with brownish mole-like pigment. On palpation the tumor as a whole is soft, usually not adherent to deeper structures, and fairly movable to the touch and is of uneven consistency, and on manipulation suggests the worm-like feel of a varicocele, save that the individual

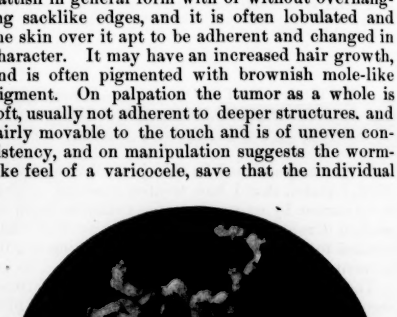

FIG. 2.

cords in this case are of hard, tough consistency.

The most usual site of the tumors is, according to Bruns, the temporal region or the head and nape behind the ear. They may, however, appear on the back, trunk, face, arms, legs, or even as sacral growths, or in the perineum. As a rule there is not more than one conspicuous tumor, but in the majority of cases other growths are to be found under the skin, often irregularly following nerve trunks, or actually showing as rosary-like beadings along the nerves themselves. The tumor may lie beneath as well as above the fascia. Pomorski records a case where the pleura was invaded from without, or they may form an elephantiasis consisting of an actual tumor formation about the distribution and endings of the skin nerves over a considerable area. The growths may involve the deeper plexuses (solar plexia: Robin: mesenteric nerves: Hektoen), or they may invade

[1] So for example a case by Jonan, Rev. d'orth, January, 1900, p. 61, described as hypertrophy apparently belongs here.

[2] Beitrage z. kl. chir., viii, 1891-1892, p. 1.

[3] American Journal Medical Science, January, 1901, p. 1.

the spinal canal along the nerve roots (Hektoen), or even exist within the cranium (Berggrün). In cases with these multiform multiple tumors there are likely to be associated with them both scattered pigmentation (as in the present case) and skin tumors of the sort known as fibroma molluscum long since shown (Recklinghausen, 1882), to be actually neurofibromata.

Surgically, the growth is usually reasonably well limited, mobile, and vascular.

Pathologically, the whole series — Ranken-neurom, general neuromatosis, fibroma molluscum or congenital elephantiasis — have one basal structure, and differ only in the place and arrangement of their growth. They consist of fibrous growth of the nerve sheaths about the nerve endings of smaller or larger nerves, penetrating between and enclosing the nerve fibres, and often causing their entire atrophy. The growth increases by concentric increase in size or by invasion along previously unaffected nerve trunks, but only in this way. It has nothing, really, in common with the sarcoma, but belongs to a sort of neuro- and fibromatous diathesis, manifesting itself at varying periods, but often, as Bruns has conclusively shown, is of hereditary origin, apparently (usually at last), fatal in character, and declaring itself in one way or another at birth or in very early life.

The growths *per se* cause no symptoms, and curiously enough almost no interference with nerve function except when they invade spinal canal or cranium, which is excessively rare. They are important through the deformity and inconvenience, and through the late danger of sloughing and sepsis. The prognosis of spontaneous cure is very slight, though individual tumors may decrease or disappear. H. L. B.

CASE II. PARAPLEGIA EXISTING FROM BIRTH; LAMINECTOMY AT THE AGE OF FIVE AND ONE-HALF MONTHS.

X. Y., who was five and one-half months old, was admitted to the hospital May 4, 1900, for a paralysis of both legs, existing since birth. The labor had been a difficult one, inasmuch as placenta previa existed and delivery was performed by rapid version. The version was performed by a skilful obstetrician, who was present in consultation.

After delivery the child progressed favorably, but when two or three weeks old it was noticed that it did not move the legs. There was at no time soreness of the back, or pain at being lifted, and nothing abnormal in the spine was noticed by the parents or nurse.

When it was a few weeks old the child was seen by one of the surgical staff of the hospital, and a neurologist was called in consultation. The examination showed apparent abolition of reflexes in the lower half of the body, together with a disappearance of sensation and motion nearly to the level of the umbilicus. There was some swelling of the legs, and the child, although well developed and healthy in other respects, was somewhat nervous, starting in its sleep and giving signs of undue nervous activity. The bowels were constipated, the bladder had little or no power of retaining urine, the back was normally movable, and there was no undue prominence anywhere, or evidence of anything wrong, with the exception of a slight fullness in the lumbar region.

In the hope of contributing something to the diagnosis and possibly demonstrating the existence of incomplete spina bifida, the child was chloroformed and an x-ray photograph taken, which showed nothing abnormal in regard to the bony structure of the spine. An unfavorable prognosis was given, and it was decided that the affection was probably not traumatic, but more probably some congenital malformation.

The child did not improve, and at the age of five months the parents were told that an operation offered some slight prospect of relief, in case there was anything pressing upon the spinal cord. The operation was not advised, but the parents were told that it was perfectly proper that it should be done if they so wished. Inasmuch as they knew that the prognosis was definitely bad, the parents were desirous of having the operation performed.

The child was admitted to the hospital on the 5th of May, 1900. She was etherized, and a straight incision made at the dorse lumbar junction, and the spinous processes of three laminæ removed, the site of the operation being located by the neurologist. The spinal canal was opened without difficulty and considerable fatty tissue was found outside of the dura. The dura was opened and much clear fluid escaped, a surprising amount welling up from the wound and flowing off at the sides. A director was passed up and down the spinal canal to see that there was no pressure existing, and the nerves coming off from the spinal cord appeared to be small and adherent to the dura. So far as it seemed proper the nerves were freed from the dura, the dura was left open, and the muscles and skin were sewed up separately. No evidence of traumatism existed and the condition seemed to be a congenital deficiency or malformation of the spinal cord. The spinal cord itself looked very small, but of course one could not say that it was more than relatively so.

The child made a perfect convalescence; there was little or no rise of temperature, and at the end of a week it was sent home with the wound healed. The swelling in the legs immediately diminished, and the child's nervous irritability disappeared. In two weeks it was distinctly better than before operation. There has, however, been no further improvement; the paralysis continues and the swelling exists in a moderate degree. R. W. L.

CASE III. A CASE OF UNUNITED FRACTURE OF THE FEMUR IN A CHILD IN WHICH THE NON-UNION WAS DUE TO THE FORMATION OF A CYST AT THE ENDS OF THE FRAGMENTS.

A girl, eleven years of age, having been previously well, in May, 1900, was run over by a wagon and the right femur broken at about the

middle of the shaft. She was under careful treatment for thirteen weeks, after which she was allowed up, the leg being straight, but a lump on the middle of the thigh was noticed by the mother. The child had been able to move about freely with the aid of crutches, leaning some weight upon the leg, but the mother is confident that the bunch in the middle of the thigh had gradually increased. In the middle of October the leg gave way and the child fell to the sidewalk.

One week later she was brought to the Children's Hospital, with a definite fracture in the middle of the shaft of the femur, and with ¾ of an inch shortening of the right leg, the shortening all being between the anterior superior spine and the inner condyle of the femur. Aside from this condition the child seemed well. The x-ray examination revealed an ununited fracture with overriding of the fragments. Traction in bed was attempted, but after several days there was no increase in the length of the leg. Ether manipulation was then attempted, but even though considerable force was used it was impossible to bring the fragments into the correct position. After one week more of trial of bed treatment without result, the patient was operated upon, and at the seat of the break a swelling as large as a lemon was found which contained about an ounce of clear, straw-colored fluid. The fluid was under so much pressure that when the cyst was punctured it spurted for several feet. The wall of the cyst was made of a thin, hard and brittle substance, which the pathologist reported to be bone callus. All of this wall was removed, the edges of the bone refreshed and brought together, the wound closed and traction and coaptation splints applied. Seven weeks later there is no yielding at the seat of fracture, the length of the legs is exactly the same, and the healing has apparently gone on without any departure from the normal course.

J. E. G.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Continued from No. 13, p. 313.)

FOOD AND DRUGS.

Inspection of American Meat.[13]

The number of live cattle intended for slaughter inspected by the U. S. Government in 1900 was 53,087,994. Every case of preserved canned beef exported from the canneries of the Great West, bears evidence of official inspection, and therefore proof that the contents of those cases were taken from sound and healthy animals. Consideration of the facts and figures presented suggests to meat inspectors everywhere that the Americans are fully alive to the value of the great demand which they have created in Great Britain for their meat products. The New Zealand Government is about to adopt inspection of all meats which are exported from that colony. It is well to know that the United States have for many years past inspected the meat they have used at home and supplied to England.

The Hygiene of Bread Manufacture.

Drs. Waldo and Walsh[14] suggested two methods by which a loaf of bread might convey specific organisms capable of causing injury to consumers.

(1) Organisms that have lodged on the crust of the loaf from surface contamination in an infected bakery; (2) organisms that have possibly escaped destruction in the interior of the loaf during the process of baking.

The authors carried out a series of experiments to determine the second of these possible modes of infection.

Experiments upon temperature:

(1) There is an average temperature in the middle of an ordinary quartern loaf of 75° to 86°C. (163° to 187°F.), and in smaller loaves of 86° to 95°C. (187° to 203°F). (2) There is a steady increase in the temperature in the middle of a loaf during the baking. The highest of these temperatures are only maintained for a short time, and are not high enough nor maintained for a sufficient time to destroy all bacilli and their spores.

Loaves were obtained from different bakeries in London, and examined by direct microscopic examination and by cultivation. The former method proved unsatisfactory, while the latter under two methods of examination yielded thirteen species of bacteria from 62 loaves of bread. These were non-pathogenic organisms. The authors argued that if these could survive the heat of baking, certain pathogenic forms might pass the same ordeal.

In a later chapter (page 41) the statement is made that the cholera bacillus has been cultivated from bread made of dough infected with a pure culture of that organism. (This subject is worthy of further investigation.)

Pathogenic Microbes in Milk.[15]

The medical officer of the London County Council caused an examination of London milk to be made last year, with the following result:

These samples were taken by an inspector in sterile glass-stoppered bottles from milk churns sent from country farms to the principal stations in London, before being handed over to the agents. Immediately after filling, the bottles were carefully stoppered, sealed, tied and brought directly to the laboratory. The bacteriological analysis was undertaken chiefly with the view of seeing whether or not any sample of the milk contained the tubercle bacillus, but during the inquiry some other microbes were detected now and again, which on account of their specific pathogenicity to animals, at any rate, deserve consideration.

[13] British Food Journal, February 1901, p. 51.

[14] Bread, Bakehouses and Bacteria, London.

[15] The Journal of Hygiene, vol. 1, No. 1, January, 1901, p. 78.

(1) Seven per cent. of the samples of "country" milk produced typical true tubercle in the guinea pig; (2) 8% of the samples of "country" milk produced typical pseudotuberculosis (non-acid fast bacillus of pseudotuberculosis. — A. Pfeiffer.); (3) 1% of milk samples produced diphtheria in the guinea pig, yielding the typical true bacillus diphtheria; (4) 1% of milk samples caused a chronic disease (in most cases with fatal results) due to a pathogenic torula apparently differing in cultural and physiological characteristics from the torula (pathogenic blastomycetes) obtained by Sanfelice, Plimmer and others, from human cancer; (5) out of the secretions of the cow's udder two pyogenic microbes were obtained: Bacillus diphtheriodes and streptococcus radiatus (pyogenes).

Death Due to Lead in Beer.[16]

A case is reported which occurred in Glamorganshire, England, of a fatal case of lead poisoning from the following cause: A workman, who went to his work early in the morning, drank each morning a glass of beer at a certain public house, receiving beer which had been in contact with lead pipes over night. The patient died, as was believed, of lead poisoning. A sample of this beer gave abundant evidence of the presence of lead.

Effect of Food Prepared with Alum Baking Powder upon Digestion.

Dr. E. E. Smith[17] reports the results of experiments made to determine the healthfulness of alum baking powders.

The first set of experiments was made to determine the influence of this food on secretion in the stomach. Test breakfasts of baking-powder bread and control bread were given to healthy individuals. The contents of the stomach were withdrawn an hour afterward and examined for acid and pepsin.

A more elaborate experiment was conducted to determine whether the baking-powder bread was absorbed from the digestive tract to the same extent as the control bread, and whether, in the process of digestion and absorption, there was any evidence of disturbing influence. The procedure was based upon the method for determining the co-efficient of availability of a dietary.

The result of these experiments was that food prepared with alum baking powder did not interfere with gastric secretion, and that it was utilized by the body in the same way and to the same extent, as other bread. The investigation revealed no reason for believing such food at all injurious or unwholesome.

Royal Commission on Beer Poisoning.[18]

A Royal commission of six persons has been appointed with the following instructions:

To ascertain with respect to England and Wales. (1) The amount of recent exceptional sickness and death attributable to poisoning by arsenic.

(2) Whether such exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, and if so (*a*) to what extent; (*b*) by what ingredients, or in what manner the arsenic was conveyed; and (*c*) in what way may such ingredients become arsenicated.

(3) If it is found that exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, by what safeguards the introduction of arsenic therein can be prevented.

NOTES UPON THE GERMAN LAWS[19] RELATING TO THE SALE OF PROPRIETARY MEDICINES.

The following comments upon the German laws relating to the sale of drugs, are worthy of notice, and in many particulars such laws might be copied in America.

The statutes have only forbidden the trade in and the sale of unapproved remedies. Private individuals may order them from foreign countries. (Ministerial Rescript of 1842.)

Since the effort to increase one's income by illegally advertising remedies which in themselves are worthless, but are recommended for a host of diseases, has greatly increased, these preparations should be suppressed as a measure of public welfare. Therefore, not only requests for the right to prepare and sell secret remedies, although shown to be harmless, will be denied, but concessions granted exceptionally in previous years, must expire with the decease of the persons to whom they were granted, and are not to be transmitted to others. (Rescript of October 12, 1867).

All advertisements or private announcements of proprietary medicines, of whatever name are forbidden, and offences will be punished according to Article 83 of the Code. Similar action can be taken by the local police. (Rescript of February 20, 1885.)

For the purpose of suppressing the growing evil of proprietary preparations, the Royal Police Board in Berlin causes such remedies to be analyzed by experts with reference to their constituents, and also with reference to their actual cost, and if necessary obtains information as to their manufacturers. A criminal suit may be founded upon the results of this investigation, under Section 367 (3) of the Criminal Code. In case of a successful suit, the composition of the remedy, its actual value, its healing qualities, and under certain circumstances the previous life of the manufacturer, may be published, and the community may be warned against purchasing it.

These precautions, and especially the injunction and the warning given to the public have had a very beneficial effect in Berlin.

On the other hand, in consequence of the vigorous application of these regulations in Berlin, the manufacturers, hard pressed by the police authori-

[16] British Food Journal, February, 1901, p. 45.
[17] New York Medical Journal, October 27, 1900.
[18] Public Health, February, 1901, p. 334.
[19] Die Apotheker Gesetze, nach Deutsch. Reichs, u. Preussischen Landes-Recht. W. Staas, Berlin.

ties, have carried on their business and plundered the people in the outlying districts.

HYGIENE OF INFANTS AND SCHOOL CHILDREN.

The Teeth of School Children.

Spokes [20] gives the following figures as the result of examination of 10,500 English and Scotch boys and girls of an average age of twelve years: These children had 37,000 unsound teeth. There were 18,000 decayed temporary teeth, more than half of which should have been filled. There were 19,000 permanent teeth, 13,000 of which should have been saved, and 6,000 required extraction. Only 14% had teeth free from decay.

The Eyes of School Children.

Butler states that (1) Refractive errors are extremely common among school children, being present in as many as 50%. (2) These errors are of great importance, on account of the immediate symptoms and disabilities which follow their neglect. (3) They are important factors in the production of many painful and disabling affections. Common enough in children, but still more so in adult life. (4) This early correction is demanded not merely as a means of therapeutics, but as an important measure of preventive medicine.

The Inability of Mothers to Nurse Their Offspring.

Von Bunge [21] presents the results of an investigation in which he shows that the increasing inability of mothers to nurse their infants is a matter of inheritance.

He obtained information relative to 665 cases with the following result:

The *daughter* was *able* to nurse her offspring in 182 cases. The *mother* was *able* in 99.2% and *unable* in only 0.8%. The *mother* was able in 237 cases. The *daughter* was *able* in 53.2% and *unable* in 46.8%.	The *daughter* was *unable* to nurse her offspring in 483 cases. The *mother* was *able* in 43.2% and *unable* in 56.8%. The *mother* was *unable* in 147 cases. The *daughter* was *able* in 0.7% and *unable* in 99.3%.

He concludes from the foregoing figures that inability to nurse is largely a matter of inheritance. Further inquiries also led him to believe that tuberculosis and nervous diseases were to a considerable extent associated with inability to nurse one's offspring.

But much more prominent appears to be the relation of intemperance. Where the mother and daughter were both able to nurse he found that the fathers were usually, at least, moderate in the use of alcohol, and only in 4.5% were they hard drinkers. On the other hand, when the mother was able to nurse, but the daughter was unable, it was found that the father was often intemperate and in 46.8% was an actual drunkard.

In this inquiry the author considered those only as able to nurse who could nurse all their children for a period of nine months, and all others as unable.

[20] Journal Sanitary Institute; April, 1900, p. 2.
[21] Die Zunehmende Unfähigkeit der Frauen, ihre Kinder zu stillen. München. 1900.

Infant Hygiene.

Dr. Charles Porter,[22] in a paper on the teaching of "Infant Hygiene," showed that the chief causes of infant mortality in his city (Stockport) were, in the order of their intensity: (1) Diarrheal diseases and the effects of malnutrition which together are responsible for 50% of such deaths; (2) respiratory diseases; (3) prematurity at birth. "But the mere number of deaths of infants is a very inadequate expression of the evil wrought by the conditions responsible for them. The wholesale rejection in manufacturing districts of war volunteers has made it conspicuously evident that the survivors of an unhealthy infancy too frequently develop into puny and physically deficient adults. From the recent analysis above referred to, I have no hesitation in saying that more than half the infant deaths in Stockport and a corresponding proportion of non-fatal damage to child life are (in the words of Herbert Spencer) the result of 'unreasoning custom, impulse, fancy, joined with the suggestions of ignorant nurses, and the prejudiced counsels of grandmothers.'"

Impressed with the gravity of this matter and having long and carefully considered the various means suggested for checking this evil, and especially the provision of crèches (which when established are often strangely unpopular or ignored) the Sanitary Committee became increasingly convinced that there is no royal road to improvement, and that any change for the better must be commensurate with the spread of knowledge of infant hygiene amongst mothers and those who, in the natural course of events, will become mothers. Accordingly it was decided to circulate twice yearly, a handbook of suggestions as to the "Feeding and Care of Infants." It was further resolved to invite the co-operation of the school teachers, and to offer prizes for competition in each school undertaking to impart such instruction to the older girls.

The appointment of a female sanitary inspector was also recommended, whose duty it should be to visit houses in which there were newly born infants, and give directions as to their care and inquire as to the cause of infant deaths.

Infant Life Protection.[23]

The *Local Government Chronicle* (England) makes the following just comments upon the Infant Life Protection Law, enacted by Parliament in 1897, and upon certain professed amendments now being considered for further legislation:

The act of 1897 was a tentative act, and it was apparently believed by its framers that it would be sufficient — in the first instance, at any rate — to deal with wholesale baby farming, and to leave retail baby farming to take care of itself. Experience has shown that, as a matter of fact, the retail baby farming trade requires to be supervised quite as much, if not more, than the wholesale trade. At present, inspectors under the act may

[22] Public Health, February, 1901, p. 344.
[23] Local Government Chronicle, March 2, 1901.

intervene if they find more than one farmed-out infant under five years of age kept in any house or premises which are so unfit or overcrowded as to endanger their health, and may obtain orders for the removal of the children to the workhouse or a place of safety until the children can be restored to their relatives or guardians, or otherwise lawfully disposed. By the bill it is proposed to extend these powers to children boarded out singly. It is not easy to see what valid objection can be raised to this extension of the principal act. It is also proposed to extend the age for the supervision of the children to whom the act applies from five to seven years. This also seems to us to be an unobjectionable proposal. The remaining proposal is to make the act apply in the case of all children under two years of age who are farmed out in consideration of a lump sum, whatever the amount of the lump sum may be, where no agreement has been made for any further payment. The act at present applies to these children only in cases where the lump sum does not exceed twenty pounds. It is very difficult to defend this limitation. Whatever the lump sum may be, it is equally to the interest of the person receiving the child that its life should be as short as possible, if it is clear that no further payments will be made in respect of its maintenance.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

A. K. STONE, M. D., SECRETARY.

Regular meeting, Monday, February 4, 1901, Dr. E. H. Bradford in the chair.

Dr. Henry Jackson read a paper entitled

DISEASES OF THE MYOCARDIUM.[1]

Dr. H. D. Arnold read a paper on

THE CONDITION OF THE MYOCARDIUM AS AFFECTING CARDIAC MURMURS.[2]

Dr. H. F. Vickery: The extent and thoroughness of the papers which have been read to-night makes it, it seems to me, almost impossible to discuss them in any true sense. With regard to the study of the heart muscle there are two things which have struck me. One is that a heart which proves upon autopsy to be badly degenerated may beat very well, regularly, fairly strongly, up to death. I have seen such a case, a heart looking almost like fat after death, and pronounced to be in a state of fatty degeneration, not mere fatty infiltration, yet in the hour of death the pulse, as I remember, about 84. Then I have known cases in which the clinical diagnosis seemed to be myocardial disease, and the pathologist found no changes in the heart. The difficulty of finding changes in the heart in cases regarded as myocarditis would seem to have been experienced by more than one observer. I remember some European authority says that in order to exclude myocarditis one should make microscopic sections of the whole heart and search all those pieces — which, as it seems to me, indicates a great deal of difficulty in finding the lesion. That brings me to the importance of a disorder of the heart which I do not think has yet been mentioned to-night. The effect of the nerves upon the production of myocarditis has been mentioned, but I believe that the heart may be macroscopically and microscopically normal and nevertheless fatally disturbed on account of ganglionic or nervous derangement. This seems to me a very difficult subject to determine about, and I think a great deal more study and investigation will have to be made before we can form definite and invariably reliable opinions with regard to the working state of the myocardium. This last year Dr. Cheadle of St. Mary's, in a course of lectures, spoke about the fatty degeneration of the heart in cirrhosis of the liver, the cases in which he had noticed it being mainly those due to alcohol, the liver sometimes being large and sometimes small. I was much interested in reading this because I had noticed, in several cases of cirrhotic disease with ascites and an alcoholic history, a mitral regurgitant murmur and an enfeebled heart. He says that the combination is rather common, and has a great bearing upon prognosis and upon treatment.

Dr. Sears: The whole subject of failing heart is introduced by Dr. Jackson's paper, which has greatly interested as well as instructed me. Yet I had hoped for still further instruction which might assist in distinguishing between its various forms. Cardiac failure is a convenient term to append to a certificate of death, but it is frowned upon by the Board of Health as too vague; it may, nevertheless, express the limit of our clinical knowledge, and in the absence of an autopsy be quite as accurate as if a more specific diagnosis were attempted, which we must regretfully admit is often beyond our capabilities. It is occasionally possible to get some help from the etiology, for a history of prolonged strain, or of a sudden effort followed by cardiac symptoms and only partial recovery, would suggest simple cardiac dilatation without degenerative changes, but unfortunately in all the conditions of which Dr. Jackson has spoken the same factors are at times operative and can seldom aid in making a distinction.

If the diagnosis between these conditions is difficult, the prognosis is scarcely easier. I have been struck, as Dr. Vickery has hinted, by the marked ability which some of these weakened hearts possess of resisting further strain. I can remember, for instance, a case which, as there was no autopsy, I will call one of cardiac weakness, occurring in an elderly man with marked arteriosclerosis, whose pulse was frequently 30 and never above 36 per minute, who successfully weathered an attack of double pneumonia. Two months

[1] See page 319 of the Journal.
[2] See page 324 of the Journal.

later after a walk of half a block he fell dead upon the sidewalk.

Dr. Jackson also speaks of the enlargement of the heart which followed arteriosclerosis in all cases among those which he analyzed. It is certainly not a necessary result of that condition when present only in the peripheral arteries as one might theoretically expect to find from the increased work thrown upon the heart. Hasenfeld, in an interesting paper, shows that it leads to hypertrophy of the left ventricle only when the splanchnics or the aorta above the diaphragm are markedly affected. Sclerosis of other vessels did not appear to alter the conditions. In the cases of contracted kidney which he examined, all portions of the heart were invariably hypertrophied, but if at the same time the splanchnic vessels were greatly altered, hypertrophy of the left ventricle predominated. Marked changes in the aorta would probably act in the same way.

Dr. Arnold speaks of the importance of recognizing the fact that cardiac murmurs alone mean little. He might also have emphasized the fact that valvular lesions are occasionally present when there are no murmurs which testify to them. He mentioned this particularly in cases of mitral stenosis. Dr. Shattuck may, perhaps, remember a patient which we saw together two years ago, where we both came to the conclusion that mitral stenosis was present although careful examination then and later, with the exception of one occasion when a slight presystolic thrill was noted, failed to detect a murmur. There was, however, some lateral enlargement and a sharp pulmonic second sound. She was then four months pregnant. On the occasion of the first visit the exertion of walking up the few steps leading to my office brought on so severe an attack of dyspnea and cyanosis that I feared she would die before she could be relieved. On his advice, which agreed fully with my opinion, a miscarriage was immediately induced. She visited me a few weeks ago, and her dyspnea was still very marked after slight exercise, but no change was detected in the physical examination.

DR. WITHINGTON: I suppose we all agree with Drs. Arnold and Sears as to the relative unimportance of cardiac murmurs compared with the condition of the myocardium, and yet, while under careful observation of cases, we are able to say that some disease of the myocardium does exist. I for one do not feel able to differentiate fatty cases from cases of fibroid myocarditis, and I should like to have sombody tell me how to do it. I have known cases in which definite myocardial disease was present and no recognition of that fact was made during life. I recall a case — reported some time ago — in which a patient came from the country and was examined by somebody in town, who assured him he had no cardiac disease whatever, no murmurs being present. The patient went away very much cheered, and died in the cars on his way home of myocardial disease.

One of the results of myocardial disease which has interested me a good deal is the somewhat rare one of cardiac rupture. I knew of a case some years ago — I was not the attending physician — which occurred in a man of seventy-one or seventy-two years, of spare habit, a man of perfectly correct habits, who had never used alcohol at all, who was agile and active, who got up one morning with a sense of oppression at the epigastrium, which was made light of at the time, and was afterwards considered to be due to an overloaded stomach. He stayed in bed during the day; about six o'clock in the evening was taken with severe pain and died in about ten minutes. He was found to have a rupture of the left ventricle, which apparently was due to fatty degeneration of the heart muscle. He had never had any symptoms, whatever, and had been in active life. Looking up other cases of this sort I have found an inaugural dissertation by Dr. Abbt, of Erlanger, in which he gathered some odd cases of cardiac rupture, and in 8 no disease of the myocardium was discovered on post-mortem examination. Of course, there is room for doubt as to how careful an examination was made. It does not appear, for instance, that in all these cases the suggestion just made by Dr. Vickery was followed, to examine every atom of the heart muscle. One of Abbt's cases interested me particularly, that of a man who consulted a physician for some cardiac uneasiness and was found to have rather a weak pulse. He was helped home and got better, and lived about two days, at the end of which time he died suddenly, and a rupture was found in the septum between the two ventricles which contained a thrombus.

In some of these cases it was curious to observe that the rupture, as in the case I first spoke of, took place not under violent exertion, but with the patient in bed and perfectly quiet.

The general subject of the condition of the myocardium is one of the very greatest importance, and one I am glad to hear emphasized as it has been tonight. It seems to me probable that the causation of these cases is very largely toxemic. In influenza, diphtheria and pneumonia we know an acute myocarditis is present, undoubtedly of toxic causation, and that the same causation plays a part, directly or indirectly, in the more chronic cases seems probable. Alcohol has been spoken of as one of the great factors. Possibly ptomaine poisoning may play a part in other cases. These toxic agents may either affect the heart muscle directly and primarily, or else secondarily through an intermediate affection of the blood vessels.

DR. F. C. SHATTUCK: There is an embarrassment of riches, Mr. Chairman, and it is very difficult to select any subjects for remark, because I have not any serious criticism on either of the papers which we have heard. Dr. Jackson said that the books did not give enough relative attention to myocarditis. It is perfectly true, but the trouble lies in our lack of knowledge. The accuracy, as it seems to me, is surprising with which we can determine the state of the heart valves considering the conditions under which we work. It seems to me very remarkable how closely in the majority of cases we

can determine the condition of valves by, as Dr. Arnold well said, a careful consideration of all the factors in the case; the murmur, as I said years ago in a paper on this subject, being the smallest part of the evidence on which we convict a valve. When we come to the condition of the heart wall we have not the same data to go upon; we have got to do lots of guesswork. It is very largely a matter of inference. Dr. Withington said he should be glad to have some one tell him how to distinguish between a heart degenerated from fibroid and one degenerated from fatty change. We should all be glad to have a revelation from on high or any other place on that subject. It appears to me absolutely a matter of surmise, and Bramwell puts it very well: "we can say that a heart is weak, but whether due to fibroid or fatty degeneration is sheer guesswork in the vast majority of cases." It is a pity that it should be so, because, of course, as has been already emphasized, it is the myocardium which is the vital thing. The valves play a passive, a purely mechanical part as it were. It is the condition of the myocardium we want to determine, and yet that is so difficult; and here comes in the proverbial uncertainty of prognosis in heart disease. What the condition of the myocardium is, whether dilatation is so predominant over hypertrophy that the heart is nothing but a stretched old rubber bag, whether the degenerative or inflammatory changes have passed the stage of even partial remedy is purely a matter of inference. There is nobody in this room who has not seen cases of heart disease do much better than he supposed they were going to, and has not seen other cases of cardiac disease do less well than he thought they would. It seems to me that one very important factor in prognosis should always be the chance which the patient has had up to that time.

DR. ARNOLD: I am very glad Dr. Sears spoke of the question of cardiac valvular disease without murmurs. I agree with him thoroughly as to the importance of the subject. The condition of the myocardium in the case Dr. Withington spoke of, where there was no valvular disease and no murmurs, brings up another important topic in this connection. It is well to have these points emphasized, though lack of time prevented their due consideration in a paper on the murmurs themselves. It has been shown experimentally that the mitral orifice contracts in systole. Examination of the heart with the x-ray shows that a marked contraction of the heart occurs laterally at the base in normal cases, so that it seems to me that the evidence that some contraction takes place is pretty clear. Furthermore, we find that these murmurs of mitral regurgitation occur in mild attacks of influenza, in measles, and in cases of mild debility so that it would seem that very slight disturbance of the myocardium is enough to disturb the perfect closure of that valve. That is the reason why I have assumed that some narrowing of the mitral orifice really is necessary for the perfect closure of the valve.

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THE ETIOLOGY OF YELLOW FEVER.

DRS. REED, CARROLL AND AGRAMONTE, of the U. S. Army, detail in the *Journal of the American Medical Association* for February 16th the results of an interesting series of experiments made in Cuba, to which we have already briefly alluded, for the purpose of determining certain questions relating to the transmission of the infection of yellow fever.

An experimental camp was established in an open field, under good sanitary conditions, about a mile from the town of Quemados. The persons selected for experiment were non-immunes who were each paid a fee for the purpose of the experiment, and the experiments were performed with their full knowledge and consent in each case. Mosquitoes were obtained which had already been in contact with and had bitten persons ill with yellow fever and were allowed to bite these men who were thus selected.

The authors write as follows:

In considering the character of the attacks and the course of the disease in these five cases of experimental yellow fever, it must be borne in mind that these infected individuals were all young men, in good general physical condition and placed amid excellent hygienic surroundings. In our opinion the experiment above described conclusively demonstrates that an attack of yellow fever may be readily induced in the healthy subject by the bite of mosquitoes (*culex fasciatus*) which have been previously contaminated by being fed with the blood of those sick with yellow fever, provided the insects are kept a sufficient length of time after contamination before being applied to the person to be infected.

Our observations do not confirm Finlay's statement that the bite of the mosquito may confer an abortive attack of yellow fever, when applied to the healthy subject two to six days after it has bitten a yellow fever patient. We have always failed to induce an attack, even of the mildest description, when we have used mosquitoes within less than twelve days from the time of contamination, although the insects were constantly kept at summer temperature. We could cite instances

where we have applied mosquitoes at intervals of two, three, four, five, six, nine and eleven days from the time of contamination of the insect with the blood of well-marked cases of yellow fever, early in the disease, without any effect whatever being produced by the bite. Thus in one case no result followed the bite of fourteen mosquitoes which four days previously had been contaminated by biting a case of yellow fever on the first day. Again, seven days later, or eleven days after the contamination, the surviving seven of these insects failed to infect an individual. On the seventeenth day after contamination, however, the bite of four of these mosquitoes — all that remained of the original fourteen — was promptly followed by an attack of yellow fever in the same individual. These insects had been kept, during the whole of this time, at an average temperature of 82° F.

Our observations would seem to indicate that after the parasite has been taken into the mosquito's stomach, a certain number of days must elapse before the insect is capable of reconveying it to man. This period doubtless represents the time required for the parasite to pass from the insect's stomach to the salivary glands, and would appear to be about twelve days in summer weather, and most probably about eighteen or more days during the cooler winter months. It follows, also, that our observations do not confirm Finlay's opinion that the bite of the contaminated mosquito may confer immunity against a subsequent attack of yellow fever. In our experience, an individual may be bitten on three or more occasions by contaminated mosquitoes without manifesting any symptoms of disturbance to health, and yet promptly sicken with yellow fever within a few days after being bitten by an insect capable of conveying the infection.

Another series of experiments was devoted to the task of determining whether clothing and bedding that have been contaminated by contact with yellow fever patients and their discharges can convey the disease. Hitherto great importance has been accorded by boards of health to the question of disinfecting all the clothing and bedding of persons coming from yellow fever districts. The mere fact that such persons had resided, even for a day, in a yellow fever district has been sufficient cause to subject their baggage to rigid disinfection by sanitary authorities. For purpose of these experiments a building was erected having a capacity of 2,800 cubic feet. Clothing and bedding thoroughly infected with yellow fever excreta were placed in this room after having been shaken out in the room to disseminate the specific agent of yellow fever. Various soiled articles were hung about the room and placed about the beds. Seven non-immunes slept in this room each night for a period of twenty days, and in some instances they slept with heads upon towels thoroughly soaked with infected blood drawn from patients during an attack of yellow fever. This attempt to infect by means of fomites proved an entire failure.

Other experiments were tried to determine the answer to the question, "How does a house become infected with yellow fever?" In this instance, a room was divided by a mosquito-proof screen, but so arranged that the air could circulate freely from one side to the other, windows being placed on opposite sides of the apartment. On one side of this screen fifteen mosquitoes were set free, which had been previously contaminated by biting yellow fever patients at different intervals before the experiment. A non-immune entered the room, remained thirty minutes and was bitten by several insects. He entered the room again in the afternoon and again the next day, and was bitten each time. On the fourth day this man was taken ill with yellow fever. Another man entered the same apartment, but was bitten by only one insect, and he entered the next day with the same result, but this man was not taken ill. It was quite possible that he was bitten by insects which had bitten yellow fever patients less than thirteen days before. During these experiments, two other non-immunes entered the same apartment, but on the other side of the screen, where there were no mosquitoes; and slept in this apartment eighteen nights with the result of remaining in perfect health.

As a result of this series of experiments the authors formulated the following conclusions:

(1) The mosquito (*culex fasciatus*) serves as the intermediate host for the parasite of yellow fever.

(2) Yellow fever is transmitted to the non-immune individual by means of the bite of the mosquito that has previously fed on the blood of those sick with this disease.

(3) An interval of about twelve days or more after the contamination appears to be necessary before the mosquito is capable of conveying the infection.

(4) The bite of the mosquito at an earlier period after contamination does not appear to confer any immunity against a subsequent attack.

(5) Yellow fever can also be experimentally produced by the subcutaneous injection of blood taken from the general circulation during the first and second days of this disease.

(6) An attack of yellow fever, produced by the bite of a mosquito, confers immunity against the subsequent injection of blood of an individual suffering from the non-experimental form of this disease.

(7) The period of incubation in thirteen cases of experimental yellow fever has varied from forty-one hours to five days and seventeen hours.

(8) Yellow fever is not conveyed by fomites, and hence disinfection of articles of clothing, bedding or merchandise, supposedly contaminated by contact with those sick with this disease, is unnecessary.

(9) A house may be said to be infected with

yellow fever only when there are present within its walls contaminated mosquitoes capable of conveying the parasite of this disease.

(10) The spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes and the protection of the sick against the bite of these insects.

(11) While the mode of propagation of yellow fever has now been definitely determined, the specific cause of this disease remains to be discovered.

THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

It is significant of the progress in the differentiation of the medical sciences that the time has come for the formation of a new national society, devoted to pathology and bacteriology. In the preliminary announcement the object of this new association is simply stated to be the advancement of the knowledge of disease, without further statement as to its scope of activity. The promoters of the new society have no doubt considered carefully the arguments now so frequently heard for and against the multiplication of medical associations, and have, wisely we think, in this instance, decided to add another to the constantly growing list. The need of a new society must be determined essentially by the enthusiasm of its members, and their capacity for producing work of merit. If new societies, by limiting themselves to certain fields, can encourage men who have already gained a place for themselves, and especially those just entering upon their professional lives, to do really good research work, we have no right to call them unnecessary or superfluous. Time alone can show how far any given society will accomplish this object; it depends, naturally, upon many conditions, but we are confident, if the topics discussed are fundamentally important, that the gathering of men interested in the same general subject into a society is the best possible way to forward the progress of medicine at large. Men who take part in such meetings demand an intelligently sympathetic audience. Nothing is more harassing to a reader than the consciousness of lack of interest on the part of his auditors, and nothing is more irksome to an audience than a paper in which it has no interest. For all concerned, then, whether we relish the prospect or not, the special society composed of men interested in the same subjects is an institution which has come to stay. The more special the topic the more limited will be the membership; but it must always be remembered that the ultimate product of these deliberations, so far as they are valuable, must finally become common property, and so justify the seeming exclusiveness which gave them birth. We have no doubt the new society of Pathologists and Bacteriologists, standing as it does in intimate relation with every branch of so-called practical medicine, will at once justify its separate existence.

MEDICAL NOTES.

Plague Situation at Cape Town. — Recent reports from South Africa regarding plague are somewhat disquieting. A number of natives and a few Europeans are being attacked by the disease. There is 1 case in the Queen's regiment at Simons Town, 1 in the First Royal Irish, at the Greenpoint camp, and 1 in the Royal Garrison Artillery, at Castle, one of the suburbs of Cape Town. Some of the Malays have offered opposition to the removal of plague patients, and also of the bodies of those who have died of the disease. The government has informed these people that if this obstruction continues, the Malay community will be isolated outside the city. The latest report gives 17 new cases. Four are Europeans. The total number of cases thus far is 287 and the deaths 99. One of the doctors attending the plague patients has contracted the disease.

Hospital at the Pan-American Exposition. —The management of the coming Pan-American Exposition at Buffalo proposes to maintain on the grounds a fully equipped hospital during the progress of the Exposition. It has already been used to a considerable extent as shown by the fact that up to the first of March, five hundred and four cases have been treated on the grounds, only one of which proved fatal. These include all forms of sickness and accidents to workmen employed upon the construction work. The hospital is under the directorship of Dr. Roswell Park.

Death Rate from Plague in Bengal. — A despatch from Calcutta announces that last week 8,000 persons died of plague in Bengal alone, including Calcutta. Towns are being deserted, but there is said to be no panic.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 3, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 88, scarlatina 27, measles 103, typhoid fever 4, smallpox 1.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending March 30th, was 244, against 316 the corresponding week last year, showing a decrease of 72 deaths, and making the death rate

for the week 22.7. The deaths from consumption were 31, pneumonia 43, whooping cough 1, heart disease 30, bronchitis 8 and marasmus 1. There were 10 deaths from violent causes. The number of children who died under one year was 39, the number under five years 66. The number of persons who died over sixty years of age was 52. The deaths in public institutions were 84. There were 5 deaths from influenza during the week, all complicated with other diseases.

OPPOSITION TO MAINE EYE AND EAR INFIRMARY. — By a large majority the Maine House of Representatives has voted not to appropriate $5,000 annually, which has been asked for the support of the Maine Eye and Ear Infirmary, located at Portland.

NEW YORK.

INCREASE OF SCARLET FEVER AND DIPHTHERIA. — There has of late been a considerable increase in both scarlet fever and diphtheria. In the week ending March 16th there were 608 cases of the former reported, an increase of 46 over the previous week, and 324 cases of the latter, an increase of 63. Since January 1st 4,959 cases of scarlet fever have been reported in the city, and a noteworthy fact in connection with the present epidemic of the disease is the unusually large proportion of adults attacked. It is however of a comparatively mild type. Thus, while there were 29 deaths from scarlet fever in the week ending March 16th, against 15 for the corresponding week of last year, the cases reported during the week in 1901 were nearly three times as large as in 1900.

OSTEOPATHY: ASEPTIC VACCINATION. — At a meeting of the Medical Society of the County of New York, held March 25th, a resolution was adopted protesting, in view of the recent introduction of bills legalizing the practice of osteopathy, against the enactment of any measure giving the right to treat disease unless a compliance with the medical laws of the state is a prerequisite. The paper of the evening was by Dr. W. K. Kubin, on "The Importance of Aseptic Vaccination." In the discussion which followed it was agreed that vaccination shields were a source of more injury than benefit, and Dr. George H. Fox suggested that the scab should be removed artificially by the physician.

ENTIRE STOMACH REMOVED. — On March 29th Dr. George R. Fowler, at the German Hospital in Williamsburgh, Borough of Brooklyn, removed the entire stomach of a patient, sixty years of age, for cancer. Two malignant growths were found in the organ, one situated near the cardiac orifice and one near the pylorus.

THE ETIOLOGY OF CANCER. — Dr. H. R. Gaylord, who has been in charge of the New York State Cancer Laboratory, at Buffalo, since its establishment three years ago, has just made public a report of the most recent investigations conducted at the institution, and announces with positiveness that he has identified the parasite claimed to be the essential organism of the disease.

APPROPRIATION FOR NEW SMALLPOX PAVILION. — The Board of Estimate and Apportionment has recently made an appropriation of $10,000 for a new smallpox pavilion on North Brother Island to accommodate 50 patients.

Miscellany.

EXTENSION OF MEMBERSHIP OF BOSTON MEDICAL LIBRARY.

THE following circular letter has been sent to certain physicians in and about Boston, with the purpose of exciting a greater interest in the library and its objects than at present exists:

Twenty-five years ago the tireless energy of a small group of Boston doctors who had the foresight to realize that a good medical library was essential to medical growth, set in motion the enterprise which has just given birth to the new and beautiful library building on the Fenway. As a warrant to high standards of medical education, and as a means to bind together men by whom knowledge is held in respect, this movement is second in importance only to the founding of the medical school itself, and because it has been felt to be of this significance, it has secured the generous support in time and money, even, of many physicians who rarely have the opportunity to consult the books upon the library shelves.

At the last meeting of the library a new departure, alluded to in our issue of last week, was decided on, for the success of which your co-operation is required. The library was never intended to be an institution of Boston only, but an institution of Massachusetts or of New England. We wish a wider sympathy and support from physicians of towns and cities outside of Suffolk County, for they too, for their own sake and the credit of the profession, and for the sake of the coming generations are bound to have the success of this movement at heart. The new building, erected almost wholly through the devotion of members of the profession, offers you a convenient and pleasant place for friendly meeting; the information which will some day be indispensable to you is here ready to your hand; those of your sons who follow in your steps will find here the inspiration essential to their success.

Correspondence.

WHEY CREAM MODIFICATIONS IN INFANT FEEDING.

PHILADELPHIA, PA., March 19, 1901.

MR. EDITOR: In the report, in your issue of March 7th, of the discussion following the paper of Drs. White and Ladd on "Whey Cream Modifications in Infant Feeding," the impression is given that the use of whey as a substitute for, or modifier of, cows' milk in the artificial feeding of infants, was regarded as a new device by

some of the debaters. Any one, however, at all familiar with the history of infant feeding, must know that whey has been used as a substitute for milk in infants with feeble digestion for fully forty or fifty years; also, that the employment of whey as a modifier of cow's milk, so as to reduce the casein of the latter, and, at the same time, maintain the nutritive value of the mixture by the use of the proteids of the whey, dates, likewise, from an early period. Mixtures of whey and cream are recommended in the first edition of Eustace Smith's "Wasting Diseases of Children" (1868), while the earliest mention I can find of Dr. Frankland's method of treating milk for infants is in Routh's "Infant Feeding," published in 1860. This method consisted in removing the cream from a given quantity of milk, separating the casein from the remaining skim milk by the action of rennet, scalding this whey and adding milk sugar, mixing this with an equal or twice its quantity of whole milk, and finally adding the removed cream. A modification of this method has long been in use throughout Great Britain under the name of "Humanized Milk." Whey and cream mixtures have also for many years been a favorite resource of Louis Starr in difficult cases. A process similar to that of Backhaus' (described by Dr. Wentworth in the discussion of Drs. White and Ladd's paper) is given by Henry Ashby in the *Edinburg Medical Journal* (N. S. 5, p. 389, 1899). The following formulæ are recommended by this author for infants who have difficulty in digesting the curd of cow's milk:

I.

Milk, 10 ounces,	Proteids,	1.75.
Sterilized Whey, 20 ounces,	Fat,	2.50.
Sugar of Milk, 1-2 ounce,	Sugar,	6.00.
	Salts,	.60.

II.

Top Milk, or 8% Cream, 10 ounces,	Proteids,	1.75.
Sterilized Whey, 20 ounces,	Fat,	4.00.
Sugar of Milk, 1-2 ounce,	Sugar,	6.00.
	Salts,	.60.

The high proportion of fat in these mixtures is due to vigorous agitation of the curd before straining, whereby, according to Ashby, the whey is made to take up more fat (1.75% to 2.00%) than is accomplished by the ordinary method of preparation. It is thus quite evident that the idea of utilizing the whey proteids in reducing the casein of cow's milk is not of recent date. The older pediatrists, of course, did not do this in any accurate or scientific manner. This was reserved for Backhaus, to be still further elaborated by Westcott, Rotch, White and Ladd. The objection to the method, as far as the home modification of milk is concerned, is that it would complicate still more an already somewhat complicated process, when our aim should be in the direction of simplicity. Moreover, it does not seem to me to be necessary. I have not found that healthy infants usually have difficulty in digesting the casein of properly modified cow's milk, nor does there seem to be any reason why we should aim, as Dr. Rotch suggests, to give 2% of total proteids by the fourth or fifth month, as this process is said to enable us to do, when breast-fed infants are well nourished with from 1.25% to 1.50% at the same age. In feeble and dyspeptic infants, however, who cannot digest the casein of cow's milk, sometimes even when given in the weakest dilutions, these whey cream modifications will undoubtedly be of the utmost value; but outside of the laboratories I fear their general use will be postponed until a ready method of calculation at the bedside can be obtained.

Very truly yours,

D. J. MILTON MILLER.

THE USE OF ANTITOXIN.

MR. EDITOR. — The blast against the use of antitoxin which was published in the Boston *Evening Record* of Friday, March 29th, by Rev. D. S. Coles, A.M., M.D., etc., etc., has the familiar stamp of a very small number of physicians who, in America, have condemned antitoxin from the outset. One would suppose from the tone of this article that patients and physicians were compelled to use antitoxin. We are not aware, however, that such is the case in any country.

In this article the following statement runs: "I predict that in a few *short* years this horse serum fad will be relegated to the same medical dump, etc." This same writer used precisely the same language in one of his publications in 1896. Now, what are the facts? In the last report of the State Board of Health the number of packages of antitoxin issued has been as follows: 1895, 1,724 bottles; 1896, 3,219 bottles; 1897, 4,668 bottles; 1898, 12,491 bottles; 1899, 31,997 bottles. That is to say, beginning with 0 in 1894 the board has issued nearly 55,000 packages, not in a decreasing ratio, but in a rapidly increasing one from year to year, a fact which does not look much like going to the "dump heap."

It would be interesting, though perhaps impossible, to ascertain the actual fatality of diphtheria in the hands of physicians who still reject the use of antitoxin, of which fortunately there are very few in Massachusetts. There is, however, on record the experience of at least one suburban town. In this town there were in all 124 deaths in 1900. Out of this number 5 were deaths from diphtheria, and of these 5, 3 occurred in the practice of the only physician who persisted in his opposition to the use of antitoxin. It is also quite remarkable that these 3 deaths were all of persons who were over ten years old — an age when deaths from diphtheria are quite uncommon.

PHYSICIAN.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 23, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.
New York	3,437,202	1,497	464	23.04	19.17	2.67	.27	3.94
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	245	69	20.00	23.66	—	.41	1.22
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	148	58	27.67	16.20	.67	1.35	3.27
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	89	20	22.40	18.08	—	1.12	2.25
Boston	560,892	222	56	26.10	18.00	1.80	—	6.30
Worcester	118,421	35	14	8.58	31.46	—	—	—
Fall River	104,863	29	11	27.60	6.90	—	—	—
Lowell	94,969	31	12	19.38	25.84	—	3.23	3.23
Cambridge	91,886	31	9	22.61	12.92	—	—	3.23
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,559	23	10	—	17.40	—	—	—
New Bedford	62,442	20	9	20.00	15.00	—	—	5.00
Springfield	62,059	19	5	15.78	15.78	—	—	—
Somerville	61,643	19	4	21.04	26.30	—	—	5.26
Holyoke	45,712	17	8	11.76	35.28	—	—	5.88
Brockton	40,063	13	3	15.38	23.07	15.38	—	—
Haverhill	37,175	16	3	31.25	6.25	—	6.25	6.25
Salem	35,956	13	3	—	38.45	—	—	—
Chelsea	34,072	10	2	20.00	—	—	—	—
Malden	33,664	13	5	23.07	15.39	—	15.39	7.69
Newton	33,587	12	2	8.33	—	—	—	—
Fitchburg	31,531	11	3	9.09	36.36	—	—	—
Taunton	31,036	11	2	9.09	9.09	—	—	—
Gloucester	26,121	7	1	14.28	—	—	—	—
Everett	24,336	9	3	22.22	22.22	—	—	11.11
North Adams	24,200	6	3	16.67	33.34	—	—	—
Quincy	23,899	5	3	—	20.00	—	—	—
Waltham	23,481	8	2	12.50	12.50	—	—	—
Pittsfield	21,766	4	—	25.00	—	—	—	25.00
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	9	5	44.45	—	—	22.22	22.22
Medford	18,244	6	1	33.33	50.00	16.67	—	—
Newburyport	14,478	—	—	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,619; under five years of age 803; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 582, acute

lung diseases 506, consumption 299, diphtheria and croup 95, diarrheal diseases 60, scarlet fever 49, typhoid fever 21, whooping cough 14, cerebro-spinal meningitis 8, measles 6, erysipelas 12, influenza 12.

From whooping cough, New York, 4, Baltimore, 1, Pittsburg, 2, Providence, 1, Lowell, 1, Haverhill, 1, Malden, 2. From cerebro-spinal meningitis, New York, 4, Baltimore, 1, Worcester, New Bedford and Medford, 1 each. From scarlet fever, New York, 40, Pittsburg, 1, Boston, 4, Brockton, 2, Medford and Revere 1 each. From typhoid fever, New York, 5, Baltimore, 1, Pittsburg, 12, Providence, 1, Boston, 2. From erysipelas, New York, 7, Baltimore, 2, Boston, 3. Measles, New York, 4, Pittsburg, 2. From smallpox, New York 6.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending March 9th, the death rate was 19.5. Deaths reported, 4,419; acute diseases of the respiratory organs (London), 463, whooping cough 91, diphtheria 74, measles 118, diarrheal diseases, 39, fever 22, scarlet fever 32.

The death rates ranged from 8.9, in Croydon to 34.2, in Plymouth, Birkenhead, 16.2, Birmingham, 21.0, Bolton, 17.2, Bradford. 16.3, Brighton, 17.5, Bristol, 21.9, Burnley, 16.9, Cardiff, 20.0, Derby, 15.2, Gateshead, 19.0, Halifax, 23.4, Hull, 21.2, Leeds, 18.7, Leicester, 18.3, Liverpool, 26.3, London, 19.3, Manchester, 23.6, Newcastle-on-Tyne, 17.6, Norwich, 16.1 Oldham, 18.7, Portsmouth, 17.5, Preston, 18.2, Salford, 23.3, Sheffield, 19.7, Swansea, 20.9, West Ham, 11.6, Wolverhampton, 13.3.

METEOROLOGICAL RECORD.

For the week ending March 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...17	29.90	34	43	25	64	52	58	W.	W.	7	8	C.	C.	T
M..18	30.05	42	54	31	63	54	58	W.	S.W.	10	16	C.	†O.	—
T...19	30.30	37	44	30	46	56	51	N.	N.E.	20	10	C.	F.	—
W..20	30.33	33	36	30	76	—	88	E.	E.	20	16	C.	R.	.02
T...21	29.80	47	58	36	79	—	90	S.	S.	20	18	O.	R.	.14
F...22	29.90	42	48	36	78	56	67	W.	W.	12	9	C.	C.	11
S...23	30.18	41	50	32	61	48	54	N.W.	S.W.	10	10	C.	C.	—
☞	30.08		48	33			67							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

SOCIETY NOTICE.

CHANGE OF DATE OF ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — Owing to conflict with the date of meeting of the American Climatological Society the annual meeting will be held at the New York Academy of Medicine in New York City on May 23, 24 and 25, 1901, instead of at the time previously announced.

RECENT DEATHS.

DR. JOHN HENRY HOBART BURGE, a physician who had been in practice in Brooklyn, New York, for fifty years, died on March 24th, in the seventy-eighth year of his age. He was born at Wickford, R. I., August 12, 1823, and studied at the Harvard Medical School and the Medical Department of the University of the City of New York. At the time of his death he was consulting surgeon to the Long Island College Hospital, St. John's Hospital and the Sheltering Arms Nursery.

DR. MYRON H. PARKHILL, Coroner of Steuben County, died at his home in Howard, N. Y., on March 26th of pneumonia after a brief illness, at the age of thirty-five.

GEORGE HAYWARD, M.D., M.M.S.S., died in Boston, March 30, 1901, aged eighty-one years.

BOOKS AND PAMPHLETS RECEIVED.

On the Treatment of Metacarpal Fracture. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

On a Grave Possible Error in Skiagraphy. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Registration of Tuberculosis. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

The General Practitioner. By James Tyson, M.D., Philadelphia, Professor of Medicine in the University of Pennsylvania, etc. Reprint. 1898.

How to Avoid Contracting Tuberculosis (Consumption). Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

The Operation for Hypospadias, with the Demonstration of Three Cases, Successfully Treated by the Forward Dislocation of the Urethra. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Predisposing Causes of Tuberculosis and How to Avoid or Overcome Them. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint.

How Persons Suffering from Tuberculosis can Avoid Giving the Disease to Others. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

A Scientific Basis for Medicine. Life and Its Association with Matter: Matter not Vital but Absolutely Chemical. By E. C. Hebbard, M.D., Boston, Mass.; Member Massachusetts Medical Society. Reprint. 1901.

How Storekeepers and Manufacturers Can Help to Prevent the Spread of Tuberculosis. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint.

A Treatise on Appendicitis. By George Ryerson Fowler, M.D., Professor of Surgery in the New York Polyclinic, etc. Second edition, revised and enlarged. Philadelphia and London: J. B. Lippincott Company. 1900.

Manual of the Diseases of Children. By John Madison Taylor, A.M., M.D., and William H. Wells, M.D. Second edition, thoroughly revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The History of Medicine in the United States. A Collection of Facts and Documents relating to the History of Medical Science in this Country, from the earliest English colonization to the year 1800. With a supplemental chapter on The Discovery of Anesthesia. By Francis Randolph Packard, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1901.

The Position of Ophthalmology in the Curriculum of the Modern Medical School, with some Suggestions as to the method of teaching it. By Swan M. Burnett, M.D., Ph.D., Professor of Opthalmology in the Medical School of Georgetown University; Director of the Eye and Ear Clinic, Central Dispensary and Emergency Hospital, etc., Washington, D. C. Reprint. 1901.

Sonderabdruck aus dem Archiv für Laryngologie. Ein Wort zu Gunsten der Diagnose mit blossem Auge und der Entfernung des ganzen Organs mitsammt dem Nachbargebiete möglicher lymphatischer Infection bei Kehlkopfkrebs. By Prof. Dr. John N. Mackenzie, Prof. der Laryngologie u. Rhinologie an der Aerzte-Schule der Johns Hopkins Universität und Laryngologie am Johns Hopkins Hospital. Reprint. 1901.

The American Yearbook of Medicine and Surgery: Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators. Collected and arranged with critical comment by various authors under the general charge of George M. Gould, M.D. In two volumes. Philadelphia and London: W. B. Saunders & Co. 1901.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume I., March, 1901. Surgery of the Head, Neck and Chest; Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza. Diseases of Children; Pathology, Laryngology and Rhinology; Otology. Lea Brothers & Co. Philadelphia and New York. 1901.

Original Articles.

A REVIEW OF THE LITERATURE OF THE THERAPEUTIC USE OF THE X-RAYS.

BY HARVEY P. TOWLE, M.D., BOSTON,

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As all will remember it is now six years since Röntgen startled the world by the announcement of his discovery of a new form of energy, which, because of its unknown character, he called the x-rays. These rays had the power of penetrating the human body, and were recognized at once as a most efficient aid to diagnosis. The use of them speedily became general. It was not long, however, before it was recognized that care must be exercised in the use or harm might result. The medical press began to receive report after report of injuries attributed to the x-rays. These injuries it was noted were all of the same type, varying only in degree. As the reports multiplied it gradually became known that the x-rays, or something accompanying them, had a distinct action upon the skin. Freund was the first to recognize this action and to suggest the use of the rays for the treatment of diseases of the skin. It was in connection with their use in dermatology that I was led to investigate the reports of the cases of skin disease, in the treatment of which the x-rays had been used as a therapeutic measure, in order to learn, as far as was possible through the literature, the theory of their action; the changes induced by them in the skin; in which diseases they had been used; the value of the treatment and the method of using them. The following is an attempt to show what has been found, without going into unnecessary detail or multiplying examples, giving, merely, an illustrative case under each topic and a very brief statement of the facts.

As has been already hinted, a vigorous discussion arose, which is still in progress as to the real nature of the rays, and as to whether the results obtained arose from the action of the rays themselves, or of something accompanying them. One early opinion was that the effects were due to the generation of ozone upon the skin.[1] There was another theory that the rays were chemical, like the ultraviolet.[2] In this connection it is interesting to note that Dr. Bowles, who has been investigating the effects of sunlight on the human body, and especially of the reflected rays from snow, concludes [2] that he cannot avoid the feeling that the x-rays will be shown to be modifications, only, of ordinary light. It was also asserted by another observer that the spot treated was bombarded by particles from the platinum electrode. Eder and Freund [3] advanced the theory that there is a disturbance of the electrical equilibrium of each molecule causing it to yield up its electricity. Still another theory was that the x-ray was a combination of different rays each doing its own work. Jutassy[4], among others, supports the theory that the changes are due to the x-rays themselves. Balthazard, as reported by Jutassy,[4] thinks that the effects are produced by the electric zone which arises about the Röntgen lamp. In an article published May, 1900, Schiff [5] quotes Freund's opinion as being that there is ground for assuming that the therapeutical effects obtained are due to electric waves, arising, in the case of the electric discharges, in the vacuum tubes under the same potential of discharge as the x-rays. Hall-Edwards [6] states that Tesla has shown that the placing of a sheet of aluminum between the tube in action and the skin has the effect of stopping all danger of burns. "Now, as aluminum is exceedingly transparent to the x-rays and allows them to pass through with great freedom, it is safe to say that the x-rays themselves play little or no part in the process." He is inclined to think that the effects produced are entirely electrical in their origin. (Further observations having a bearing on this point will be given in the description of the histological changes.)

In the earlier days of the use of the rays, before their management was as well understood as at present, "accidents," *i.e.*: cases of dermatitis, were not uncommon. Every author now emphasizes the fact that great care must be exercised in the use of the x-rays and that no one without experience in the use of the rays should attempt to employ them. As it was these so-called accidents which first called attention to the possibility of using the x-rays therapeutically, and as they present certain features which throw light on the peculiar effects of the x-rays, and which help to explain why they are used as a curative agent, it will be profitable to consider rapidly this x-ray dermatitis.

It has been noticed that a certain sequence of events always follows on the continued use of the rays when the use is pushed to the point of visible reaction. Albers-Schönberg describes the process as follows:[7] "First, a slight yellow coloring appears growing to a diffuse redness which later becomes a darker red. Light itching and prickling are experienced by many at this stage. Next there is a general feeling of warmth. With increasing redness comes edema of the skin. On continued exposure the skin becomes even darker. Small vesicles appear which become excoriated and the process spreads all over the exposed area. The process resembles that in burns. This may go on until a gangrenous ulceration results which has absolutely no tendency to heal. Over the excoriated parts healing is extraordinarily slow and it is months before a normal skin is reproduced."

I wish to give a few cases of x-ray dermatitis to illustrate the points given above, particularly the slowness of recovery. Drury [8] reports a case which was exposed for one hour, tube distant one to two inches. Three hours later nausea. Later, case exposed one and one-half hours. Redness next day which increased (without further exposure) until, on the fourth day, vesicles appeared which ruptured, leaving excoriations with a profuse discharge. Healing was very slow. Sixteen weeks after exposure the ulcer was still open and

it became necessary to etherize and curette. Crocker[9] reported the case of a boy who had one exposure of one hour. Tube distance, 5 inches. Next day, skin red; sixth day, skin stiff; ninth and tenth days, vesicles; eleventh day, vesicles began to rupture, leaving an excoriated surface which healed very slowly. The ulcer was not entirely healed three months later. Bannister[10] reports the case of an army officer who was exposed for a radeograph to locate a bullet. As attempts to get a good picture failed the patient was given eleven sittings with a total exposure of over fifteen hours. On the first day of the last series the skin began to show signs of inflammation which extended during the trial. The epidermis was shed leaving exposed a red hyperesthetic area one-half the size of a man's hand. There was also a profuse outpouring of serum. Large blisters formed rapidly such as are seen in scalds. The man had been in bed for a month at the time of the report and the wound was still so tender that he could not endure a dressing upon it. Apostoli[11] reports a case where the wound was open for over one year.

These cases will serve to show the caution that care must be exercised in using the rays no idle one. Mies,[12] Sehrwald,[13] Fuchs,[14] Lee,[15] King,[16] Gilchrist,[17] and Bronson,[18] among others, have reported cases of x-ray dermatitis in which serious injury with a very slow recovery was a marked feature. These cases recovered and I have not yet come upon a case in which death has resulted directly from the x-rays, but reprinted in a recent number of the *Boston Medical and Surgical Journal* was a case, taken from the *Lancet*, of an old lady of sixty-eight who was exposed by a layman several times. A large slough developed and several months later she died, being unable to stand the drain in her enfeebled condition.

It is only fair to state at this point that accidents are now rare, the knowledge that they may occur enabling the present day operator to guard against them. All operators now insist that a patient's susceptibility to the rays must be determined before further treatment is carried on, a measure taken to prevent such injuries as those mentioned above.

Before leaving these cases I wish to call attention to the variability of the time of the appearance of the first symptoms, the similarity of the lesions to those produced by burns and the marked tendency to a slow recovery. These points are still further brought out in a series of 69 cases reported by Dr. Scott,[19] especially the varying susceptibility to the rays as shown by the time of the appearance of the first symptoms and the varied lengths of exposure which caused symptoms. In this series the average is three and one-half hours — the longest was twenty-four hours, the shortest twelve minutes. The average distance of the tube from the part exposed was in 25 cases a little over 6 inches — the greatest 18 inches with 19 exposures; the shortest ½ inch with one exposure of half an hour. The shortest time noted for the first appearance of symptoms was during exposure, the longest four weeks(?), the average in 31 cases being one and two-sevenths days. These figures are taken from cases collected in 1897. Today, as will be shown later, in speaking of the method of using, the length of exposure and the tube distance have been very much modified.

In addition to this review of the macroscopical changes a closer study of the microscopical changes is necessary in order to understand on exactly what grounds the therapeutical use of the x-rays is based. Kaposi[8] had explained on clinical grounds the effects produced. He said, there is caused first a fleeting hyperemia then a paresis of the deeper vessels of the skin, which change then extends to the superficial vessels and induces a true hyperemia. It is interesting here to compare this opinion given early with one given lately by Schiff and Freund[20] that according to present knowledge and experiments the greater part of the action is upon the vessels of the skin. Since Kaposi's explanation was made many microscopical examinations have been made. In a recent article by Allbers-Schönberg and Hahn[7] it is said that Oudin, Barthélemy and Darier found a thickening of the epidermis, increase of keratohyalin and atrophy and disappearance of the hair follicles and glands. Kibbe[21] in a mild case of dermatitis found changes in the outer cells of the rete especially in the nuclei, increase in the keratohyalin. The corium showed the ordinary changes of a mild dermatitis, capillary dilatation with round-celled infiltration most marked about the hair follicles. Gassman[7] in an ulcer caused by the x-rays found that "repair was by granulation tissue not different from that in ordinary ulcers; the vessels of the cutis and subcutis showed characteristic changes — growth and vacuolising degeneration of the intima." According to Jutassy[4] most authors are agreed that the histological changes are the same as those in ordinary inflammation. He also found the hair papillæ atrophied and the hair follicles filled with a connective tissue rich in cells. Unna was the first to discover special changes in the collagen. He also found that the lymph spaces had nearly disappeared and that the elastic fibres could not be demonstrated.

It is interesting at this point to compare the changes caused by the use of the x-ray with changes caused by the direct spark as given by Freund[20] as the result of some experiments made by him. He says that the direct spark, whether as a direct discharge from the pole or as an "affluvium," will cause in animals a falling of the hair; that the direct spark will kill bacteria; that the effect can be produced through thin sheets of wood, paper, aluminum and the human skin; that the physiological effect of the negative spark is greater than that of the positive; that the x-rays, according to these researches, have themselves no physiological meaning; that the pathological changes in the skin, caused by the direct spark, consist of hemorrhages into the cutis, in inflammation and in vacuolization of the vessels.

As the x-rays seem to have an especial value in the treatment of certain diseases due to bacteria,

certain investigators made a study of their bactericidal powers. The only positive result which I have seen was that obtained by Rieder.[27] He used different culture media, such as agar, gelatine and serum, spread on glass plates. Over these was placed a sheet of lead in which was a circular aperture. The whole was so arranged that a portion of the culture was freely exposed to the x-rays through the aperture, the rest being protected by the lead. Ordinary light was excluded by pasting black paper over the hole. Cultures of cholera bacilli, anthrax, diphtheria and bacterium coli were exposed from one to three hours to the x-rays from a very powerful machine. The vacuum tube was distant 12 inches. Under the protecting lead the bacteria developed freely; under the aperture no colonies or only a few developed. The x-rays were also effective in stopping the growth of colonies and in this respect were more effective than sunlight. There was no change induced in the gelatine as was shown by the fact that bacteria afterward grew upon it. Wolfenden and Ross,[22] Lyon,[23] Delepine,[24] Sabrazes and Rivière,[25] and Wolff,[26] all made similar experiments. Various cultures of anthrax, bacillus prodigiosus, diphtheria, cholera vibrio and typhoid bacilli were exposed in test tubes to the x-rays. The results were all negative, growth not being interfered with. The weight of the evidence, therefore, would seem to be against the x-rays having any direct bactericidal power.

We have now seen upon what grounds the theory arose that the x-rays might be of therapeutic service in diseases of the skin. This theory was based, not upon a bactericidal power of the x-rays but upon the changes induced in the tissues, especially in the vessels and hair follicles. Freund was the pioneer in the application of the rays to therapeutic uses. His first case was one of nevus Pigmentosus Piliferosus of the back. This being his first case he had not then perfected the method he now uses, so that, in consequence of too long and too intense exposure a dermatitis developed. Notwithstanding this, he considered the results obtained so encouraging that he was led to institute further experiments, both alone and with Schiff, in the removal of hair and in other diseases, notably lupus, until now they have published more cases than any other experimenters. Their reports are especially instructive because they note the strength of current used, the tube distance, the length and number of exposures and the results, with the time elapsed since last treatment, necessary details which many omit from their reports. In June, 1898,[29] they published a series of cases of the removal of hair by means of the x-rays. Similar cases have been reported by others — Behring,[30] Daniel,[31] Wood,[32] Kolle,[33] Gocht.[35] In addition, the falling of the hair has been incidentally noticed by observers who were using the rays for another purpose. In most of these cases and in Schiff and Freund's earlier ones the hair showed signs of returning. Kaposi predicted that in such cases, as soon as the paresis of the vessels had worn off, the tissues would regain their tone and the hair would return. As has been shown in the cases of dermatitis given, the process of repair is a very slow one so that cases now apparently successful may later on show themselves unsuccessful. Freund and Schiff have recognized this fact and have accordingly instituted a method which they think renders the effects permanent. They say in an article, published on June 28, 1898,[34] that it is probable that the hair bulbs and papillæ never will regain their functions because of the changes caused in them by the inflammation. So, by short sittings at the time the return of the hair may be expected, they hope to so upset, and to keep upset, the nutritive condition that the functions will be destroyed either by mechanical alteration or by a paresis of the vessels. They consider that they are borne out in this hope by the fact that the only return was in a case in which these supplementary sittings were omitted. Their cases were, however, reported within a few weeks after the cessation of treatment. In a supplementary report it was stated that six weeks after the first report 1 case was beginning to show a return. This would seem to show that the fact of no return in six or eight weeks is not conclusive. Since then, however, they have reported cases in which there had been no return in two years. One case which has come under my own observation seems to cast some doubt upon the permanency of the effect produced even by repeated series of exposures. The man operated an x-ray machine for a large institution and in the course of his work suffered many and repeated exposures. A very severe dermatitis of the hands resulted but he did not give up his work permanently until he was forced to enter a hospital as a patient. In addition to the dermatitis of the hands, he had lost most of the hair of the face. He did not use the x-ray machine again for several months. Toward the end of this period it was noticed that the hair was returning again. Upon resuming his work the hair fell out again, but when he once more gave up his work the hair returned. This process has been repeated several times. Upon exposure the hair would fall, upon the cessation of work the hair would return slowly after some time. This would seem to indicate that even after the severest injury and when to all appearances the loss of hair is permanent a long time must elapse before the apparent result is accepted as a permanent result.

One case will serve to show the method used by Schiff and Freund in removing hair. A woman applied for the removal of hair on the upper lip and chin. She was given seventeen sittings of ten minutes each from January 4th to 31st: Tube distant, 15 to 20 centimetres; volts, 10 to 11½; amperes, 1½ to 2; intensity medium, 30 centimetres. January 29th: Most of the hair snow white; skin with a dark pigmentation. January 30th: Hair falling. February 3d: Skin smooth, bald; no trace of brown color or erythema. March 20th: About twenty hairs returned. March 20th and 21st: Two sittings of ten minutes each. March

23d: Hair white; fell spontaneously. April 23d: About five hairs to be seen on the chin. April 23d and 24th: Two sittings. April 25th: Hair fell out; no return at the end of May.

The chief therapeutic use of the x-rays, however, has been in the treatment of lupus vulgaris. Freund and Schiff,[3] [34] Kummell,[36] Gocht, Albers-Schönberg,[7] Jutassy,[4] Hall-Edwards,[6] Jones,[37] Himmel[38] and several others have reported cases treated by the x-rays. Schiff and Freund report 2 cases in May, 1898. In the first case treatment was given from January 8th to February 18th. Nineteen sittings of twenty to twenty-five minutes each. March 6th it was noted that there was complete healing over. Smooth white scar. Isolated nodules in surroundings. The second case was treated from December 30, 1897, to April 4, 1898. Forty sittings of ten minutes each. Slight dermatitis interrupted sittings for a time. Result, cure. Schiff[3] reports the case of a girl with two lupus ulcers. One ulcer healed in two months, the other in five months. Also, the case of a boy who was exposed one-half hour to one hour daily for ten days only. Nevertheless the therapeutic action continued, and the lupus was healed in four months without further treatment. Kümmell[36] has treated 16 lupus patients, in whom there was at least improvement in all but one. Cures in from four weeks to several months. He then states that the time elapsed is too short to claim too much as to results. Albers-Schönberg[7] reports 12 cases. He has had some returns, "but what procedure has not." Of these 12 cases he considers 7 absolutely cured. Several have remained free for over one year, and one for one and a half years. The opponents of this method of treatment, he says, will not consider a period of from nine months to one and a half years long enough. He looked with suspicion on the other 5 cases — some had returned, and all were unsatisfactory. Hall-Edwards[6] reports 3 cases, in only one of which was the result considered satisfactory, "due perhaps to defective procedure." Jutassy[4] reports 2 cases cured. In commenting upon the published cases he says, "that a large part of the lupus cases reported are still too recent to be judged. In about one-half of the older cases there has been a return." Many other cases have been reported as cured by the x-rays, but all are recent. The oldest cases which I have seen reported are those of Schiff, Gocht, Kümmell and Albers-Schönberg. These men have reported cases in which there has been no return in over one year, and a few cases in which there has been no return in two years. These cases are surely encouraging, but remembering the peculiar delayed healing as shown in the cases of dermatitis, and how slowly the changes set up are overcome, perhaps, as Jutassy has said, the time is still too short to allow of an absolute judgment.

The reaction of the lupus tissue to the x-rays is considered by Freund and Schiff to be characteristic. They describe this reaction as follows: The visible lupus nodules grow gradually dark red and turgid. Then there appear, on places apparently normal, dark spots, which gradually assume the characteristics of lupus nodules. Later the nodules fall out, leaving a hole the size of a pin's head, which looks as if it were made by a curette. In the place of the nodules are left fine subcutaneous scars. The intervening skin is white and smooth. Himmel concludes that the x-rays exert a greater and deeper action upon the lupus tissue than upon the healthy skin.

Lupus vulgaris and cases of hypertrichosis are the diseases in which the x-rays have been used therapeutically most often, but there are also several other diseases in which they have been used more or less.

A few cases of lupus erythematosus have been reported. Jutassy claims better results in the treatment of this disease from the x-rays than from any other treatment.

Gocht reports a case where hairs growing in a wound prevented healing. The hairs were removed by the x-rays, and the wound then healed. This use of the x-rays is similar to a suggested use in removing the hair in certain parasitic diseases, such as tinea, favus, etc., where a permanent removal is not desired, but merely a temporary removal, to enable treatment to be carried out more easily and effectively.

Before the French Academy of Sciences, on behalf of Dr. Sorel and Professor Soret of Havre, M. Mascat[39] showed a series of photographs of the hand of a patient who had been suffering from elephantiasis. The patient had recovered, and solely by the use of the x-rays, after three sittings of a few minutes each.

A few cases of eczema have been treated by the x-rays. According to Albers-Schönberg[7] the x-rays remove absolutely and surely the eczema accompanying lupus. Dr. Pusey[40] states that "the cases of eczema in which this method has a field of usefulness, are the very intractable cases of chronic eczema, in which there is a necessity for a marked stimulation of the skin, in order to get absorption of the inflammatory products." He concludes that the field of usefulness in eczema will be limited.

A few cases have been reported recently of the use of the x-rays in cutaneous cancer. Stenbeck claims to be the first in this field. He reports[41] a case of a woman with two ulcerations on the dorsum and right half of the nose. At first, daily sessions of ten to twelve minutes each were given; lamp distance fifteen to twenty centimetres. Reaction began after four sessions. After eight or ten exposures profuse suppuration ensued. After thirty-five exposures the ulcers began to look clean and smooth, the epidermal islets were cast off, and new epithelial tissue began to form. Treatment now began to be more vigorous, and the exposures were prolonged to fifteen minutes each, with the lamp at ten centimetres. A weak reaction appeared, but the newly formed epidermis was not affected. The greatest resistance was offered by the wall-like circumference of the ulcers. An entire month was required to overcome it. It decreased in height and width, and then broke up

into individual segments, which in time completely disappeared. Sequira [42] has reported a like case. Against these cases can be urged the same objection as against many of the lupus cases, time enough has not elapsed to judge of the final results, but even so, they are encouraging enough to warrant further trial.

Enough has been said to show the nature of the changes in the skin set up by the use of the x-rays and of the diseases in which advantage has been taken of these changes to apply them to therapeutic use. It remains but to speak briefly of the method of using the rays. The necessity of care to prevent injury has been spoken of already. To avoid such injuries Freund and Schiff have published a method of procedure which, if followed, they think will render the use of the rays perfectly safe. They state that for epilation without inflammation the maximum limit of strength of current should be 2 amperes; tension, 1½ volts; tube distance, 20 to 25 centimetres. The length of exposure should not be over ten minutes. To excite inflammation as in the treatment of lupus, increase the strength to 3½ amperes and the tension to 12¾ volts. Shorten the tube distance to 10 centimetres or less. Length of exposure should be the same. Protect the parts not to be treated with sheets of lead. To test the patient's resistance to the rays, give one or two test sittings with the tube distant 20 centimetres. If there is no reaction in three weeks, it shows that the patient can stand the treatment. All observers unite in saying that care is necessary, and that treatment must be suspended upon the first appearance of dermatitis. By observing these rules it is claimed that the treatment is rendered entirely safe; indeed, a number of men who have exposed hundreds of cases to the x-rays say that they have never had a case of dermatitis follow.

We may conclude: (1) That the real nature of the x-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; (2) that the treatment is not without danger, unless the greatest care is used; (3) that the effects of the x-rays remain for a long time, and recovery is very slow; (4) that whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the x-rays; (5) that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; (6) that the x-rays are not proved to have any bactericidal power; (7) that their therapeutic effect is probably due to the inflammation excited; (8) that hair can be removed by their use, and that lupus and several other diseases can be healed over; (9) that in a few reported cases we may fairly assume that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; (10) that the effect of exposure to the x-rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; (11) that while the permanency of the cure effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

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PATHOLOGY OF THE NEWBORN AS ILLUSTRATED IN THE PRACTICE OF THE WRITER.[1]

BY FREDERIC W. TAYLOR, M.D., CAMBRIDGE, MASS.

WHEN your president did me the honor to request from me a paper for this meeting, he suggested that it be clinical rather than scientific. Acting on this suggestion I have chosen to look over my records of obstetric cases with reference to the condition of the children.

The cases number in all 654, 563 being cases of which I was in charge, and 91 being cases at which I was present as assistant or consultant. I find that 64 — nearly 10% — of the children were abnormal either at birth or during the first few days of life, and it is a report of these that I present for your consideration tonight. All had been carried at least seven months.

[1] Read before the Obstetrical Society of Boston, January 15, 1901.

The classification which I have made is a purely clinical one. It is as follows: Children stillborn, 23; children born alive, dying within a few days, 22; children whose respiration was delayed, 10.

Of cases not included in these groups there are: deformity, 2; ophthalmia, 3; melena, 2; fracture of clavicle, same child as one melena, 1; depression in skull, 1; facial paralysis, 1.

Less serious conditions, as icterus and fungus of the navel were not noted.

Children stillborn. — Of the 23 stillborn infants 9 were delivered by forceps. In 8 of these cases the forceps were applied high. Four of these 8 cases required extreme force for delivery. The other 4 were delivered without difficulty; in 1 the cord was at the side of the head. In the ninth case the head descended well into the pelvis with occiput posterior, and did not rotate. The labor was long, about thirty-six hours. The mother's abdomen was very large and legs edematous. The urine examined two weeks before labor contained no albumin. The quantity of liquor amnii was estimated to be 6 quarts. The entire body of the child was very edematous, and the abdomen much distended. The placenta was adherent over its whole extent, and was very large and spongy. The cause of the edema of the child was not apparent. If maternal it must have been a temporary condition, as previous children, 6 in number, had been healthy, and the mother gave birth to healthy twins in less than thirteen months after this delivery. Two of the 23 stillborn children were delivered only after the head had been crushed. In each case the mother's pelvis was narrow. One child was turned with the expectation of extracting it alive. This proved to be impossible. The child died during the unavailing efforts to deliver the head. The other child died probably thirty-six hours before delivery. It weighed 10 pounds without the brain. The cause of its death was not discovered. The only abnormal condition of the mother, beside the narrow pelvis, was an acute universal eczema which began about ten days before the labor.

In 2 cases the position was transverse. In each the physician on his arrival found an arm presenting and the membranes ruptured.

In 2 cases the mothers were uremic, but had no convulsion. One of the children was delivered spontaneously, the other by podalic version. In the latter case the cord was pulseless when the hand was introduced into the uterus. Therefore in neither did operative interference cause the death of the child. The uremia of the mothers is the only condition that was apparent that would act unfavorably on the children.

An abnormal placenta existed in 3 cases. One was fatty; a second was large and contained an unusually large proportion of connective tissue. In this case the mother had mumps when several months pregnant. The attack was followed by extreme tenderness in both ovarian regions. The third placenta was hard, white and thin over more than half its area. In each case the delivery was premature.

Antepartum hemorrhage occurred in 1 case, beginning fifteen hours before delivery, and continuing eleven hours. It was probably the cause of the child's death, although fetal movements had not been felt for seventeen hours before the appearance of the flow which was synchronous with the onset of labor.

In 2 cases in which macerated children were born, one at seven and one-half months, the other at nine, the mothers had each been pregnant twice before, but had never borne healthy children. One had been delivered at six months and at four months; the other at eight months of a dead fetus, and at nine months of a child that lived only a few minutes. The reason for this habit did not appear.

Of twins born at full term, estimated to weigh 6 pounds each and apparently well developed, the epidermis was freely exfoliating from one, and there were blisters on the fingers of the other. Here also no cause of the deaths was discovered. The mother had previously borne one living child, and had miscarried once.

Children born alive but died. — The number of children born alive but dying within a few days of birth were 22. Eight were born naturally and showed no cause of death except a lack of vitality. One of them was born at seven months, 2 at seven and one-half months, and 3 at 8 months. The other 2 were probably also premature, although the length of the pregnancy was not known. They were both small. One weighed 4 pounds and 3 ounces; the other was not weighed. Three of the 22 were delivered by forceps, which were applied high in 2 cases, and low in 1. One child delivered by high forceps was apparently healthy, weighed 8¾ pounds, but lived only three days. The mother found it dead soon after she had nursed it. I suspected that it accidentally smothered in the pillow on which it was laid. The second, delivered by high forceps and traction rods, had the cord twice about the neck. Artificial respiration induced a few gasps only. The mother was edematous but not albuminuric. In the third case the head was in the vagina when forceps were applied, and extraction was not difficult. The child lived five days. It appeared perfectly well until the fourth day. Then at intervals respiration became feeble and slow, and the child cyanosed. On the administration of stimulants respiration improved, and the color became good. These attacks increased in frequency and severity until death. A careful post-mortem examination of head and trunk by Dr. E. A. Darling and myself revealed no lesion, and I am at a loss to explain the condition. In the cases of 5 children, 2 being twins, the mothers were uremic. One of the 5 was born at seven months. The mother had post-partem convulsions. The twins, also born at seven months, were extracted by the feet after manual dilation of the os. One lived a few minutes. It had been laid one side on the supposition that it was in good condition, and was found dead with much blood escaped from the cord. The other lived a few hours. The mother had vomited for eleven

days previous to the labor, and continued to do so till she died. The autopsy of the mother revealed advanced chronic parenchymatous nephritis. In the fourth case the mother had convulsions several weeks before labor and again during labor. The os was dilated manually, the child was delivered by turning, and lived a few hours. In the fifth the cord was tight about the neck, but offered no serious resistance to delivery. The fetal heart was plainly heard in the early part of the labor, but the cord was pulseless at the time of delivery. The child gasped only a few times. Labor had lasted fifteen hours; delivery was spontaneous.

One mother of twins was in an advanced stage of phthisis. The children were born at eight months, and died within two days. One child developed purulent inflammation at the navel and died, aged five days. The source of the infection was not discovered.

There was one case of hemorrhage from the navel. There was no history of hemophilia in the parents or in an older child. The delivery was by breech, but was successfully accomplished. The cord was unusually long. The labor lasted only four hours. The child, a boy, was well till the morning of the fourth day. It was then reported to have fretted during the previous night and to have had two black dejections. A few stains thought by the nurse to be blood were on the napkin. The child was pale and listless. At noon it had a convulsion, and in the evening I was shown two napkins considerably stained with blood, and found the belly band which was then on extensively stained and the napkin somewhat, and the cloth about the navel saturated with blood. One or two lines from the line of demarkation of the cord from the skin was an excoriated line on the skin a quarter to a third of an inch long. The proximal part of the cord for a third of an inch was full, soft and moist. The child was pale, and cried feebly. Bleeding stopped on removal of the coverings. The next morning profuse bleeding again occurred, and in place of the excoriated line seen the day before there was a granular surface one to two lines wide, extending two-thirds the circumference of the navel. The child was pale and cold, and died at noon without recurrence of the bleeding.

There is 1 case of deformity of the esophagus and trachea. The child cried normally immediately after birth, but within two or three minutes the breathing became hoarse and squeaky, as if obstructed, and the epigastrium and suprasternal depression were deeply retracted during inspiration; then respiration ceased, and the child relaxed. Then came a discharge of perhaps 2 drachms of yellow frothy mucus from the nose while the head was dependent. Respiration returned, and was clear. In a few minutes, however, it was again obstructed, and then cleared in the same manner as before. Later an attempt to feed the child was followed by an attack of dyspnea and discharge of liquid through the nose. A bougie passed through the nose met an obstruction 5 inches from the nostril. The child lived less than two days. An autopsy was made by Dr. Wm. D. Swan and myself. A bougie passed into the esophagus was arrested at the same point as during life. A short distance below the level of the cricoid cartilage the trachea and esophagus were firmly joined by connective tissue. The upper part of the esophagus was a blind pouch. The lower part communicated at its upper end with the trachea by an opening about a line in diameter. Above this opening, on the posterior wall of the trachea, was a shallow groove.

Another case of deformity, a meningocele, was seen with Dr. E. A. Darling, who discovered by vaginal examination that the fetus was abnormal, and feared difficulty in delivery. The tumor was pedunculated, the size of an orange, and attached at the posterior fontanelle. On the under side of the pedicle was a small opening from which a liquid drained constantly. The temperature rose to 107° F. on the second day, and death occurred on the third. The tumor contained cerebrospinal fluid and brain tissue. The cerebral hemispheres were small, and the corpus callosum absent.

Delayed Respiration. — In 10 cases there was sufficient delay in respiration to cause the fact to be noted, while not enough to prove fatal. In one of these the cord was twice about the neck; in another once, and so short that it was necessary to cut it before the shoulders could be delivered. It is probable that tension on the cords had sufficiently interfered with fetal circulation to cause asphyxia and consequent delay in respiration. At least no other cause was evident. In 6 cases the children were delivered by forceps, 4 by high, and 2 by low. These 6 labors were all long, from sixteen hours to four days, and ether was used for a considerable time. In the other 2 delivery was by podalic version. Both mothers were uremic; one of them died of eclampsia. In the case in which the mother died the delay in the establishment of natural respiration was so great that it deserves detailed notice. The mother, a primipara, was within a few days of the expected time of confinement. Symptoms of uremia appeared ten days previous, increased in spite of treatment, and culminated in blindness and convulsion. Labor had not begun. The os was dilated forcibly and the child delivered by podalic version. Dilatation and delivery occupied three-fourths of an hour. Delivery was not difficult. The child was cyanosed; the heart beat feebly about 100 a minute. After a few minutes of artificial respiration the child gasped 4 to 6 times a minute. The treatment consisted of baths of warm water alternating with sprinkling of cold, rhythmical traction of tongue, suspension by feet, artificial respiration — both the Sylvester and the Schultze methods. At the end of half an hour the pulse was 25 to 30, the respiration 4 to 6, gasping, the color not improved. Dr. Geo. P. Cogswell, who was assisting me, then began slapping rapidly and vigorously all parts of the child, head as well as trunk and limbs. In fifteen or twenty minutes the heart beat was 80 and the gasps 15. Every

remission of slapping was followed by feebler action of heart and lungs, and renewal of slapping by stronger action. Gradually the skin became mottled pink and white, and there were a few feeble cries. An hour and a half after birth, till which time this treatment was continued, the heart beat was 120 and the respiration 20, and persisted without treatment; the color was good. The child subsequently showed no ill effects of the heroic treatment. For some weeks it did not gain weight, but later throve fairly, and when ten months old was reported to weigh between 17 and 18 pounds. When this child had repeatedly ceased to breathe as soon as vigorous treatment was withheld, I despaired of its life, assuming that a condition or lesion existed incompatible with life. Its resuscitation was to me unexpected, and may be ascribed to Dr. Cogswell's patient and enthusiastic efforts. One naturally asks what pathological condition was removed thereby. Is it not fair to suppose that in addition to asphyxia the child was suffering from uremia received from the mother, and that because of this, respiration and heart action could not be maintained except under the influence of excessive stimulation, and that during the hour and a half during which such stimulation was applied, elimination through skin, lungs and kidneys had been sufficient to bring the blood and tissues into a condition near enough normal to permit vital processes to continue spontaneously? But whatever the explanation, the result encourages longer and more energetic efforts than I believe most of us are accustomed to make in behalf of children born under similar conditions.

Deformity. — Beside the cases of deformity included in the second group, and already described, there are 2, one of hare lip and cleft palate, about which there was nothing unusual, and one of vascular nevus. The nevus was of the capillary variety. It was on the left side of the face, and made that side more prominent than the other. When the child was only a few weeks old, his mother noticed that he did not move the right hand as freely as he did the left. When five months old he screamed an hour, and then had twitching of the right leg. Subsequently he had many attacks of screaming and convulsion. The convulsion usually began in the right eye, and slowly extended over the right arm and leg. He is now seven and one-half years old, walks with a slight limp, and has but little use of right arm and hand, which are small. He is undersized, and poorly developed mentally. A recent examination shows that the nevus occupies the left cheek, left half of forehead, of nose and of upper lip, and appears irregularly on the palpebral conjunctiva of the left eye, the inside of the left cheek, and the left half of the palate. This distribution corresponds to the distribution of the ophthalmic and superior maxillary branches of the fifth cranial nerve, a correspondence which has been noted in other cases. If abnormal vascularity has followed also the distribution of the dural branches of the superior maxillary branch, have we not a reasonable explanation of the convulsions and paralysis in the pressure which would naturally be exerted by the very vascular tissues on the motor areas?

Ophthalmia. — Three cases. None of them was of a very severe type.

Melena. — There were 2 cases. A girl, weighing 10 pounds, was born after a pregnancy of ten months. The father had had severe attacks of epistaxis during boyhood and youth. Otherwise the family history is negative. The labor was normal, except that delivery of the shoulders was difficult, requiring strong traction on the head in addition to the expulsive efforts of the mother. During traction the right clavicle broke near its outer end. The child was born at 2.30 A.M. During the following day and night she was in much distress, crying, choking and vomiting frequently. The vomitus consisted at times of brown mucus, at times of bright red blood. The junction of the umbilical cord and skin was of a slightly yellow color, of sodden appearance, and had a red areola. The yellow ring was snipped with scissors, but no pus exuded. On the second day vomiting of the same character as on the first occurred three times, and in the following night once, but not afterwards. On the fourth day the navel had a much better appearance. On the fifth a bloody vaginal flow began, and lasted four days. Vaginal examination, by means of an aural speculum, discovered the blood coming from the uterus. The cord came off on the ninth day leaving the navel normal. The temperature reached 100° F. on the second day, 101.8° on the third, and 100.2° on the fourth, and was afterward normal. The digestion was poor for several weeks, but good since then, and the child has developed satisfactorily. The clavicle united without deformity.

The other child, a boy, weighing 6 pounds, had no family history of hemophilia. The mother had serious mitral insufficiency. All over the child's head there were at birth dark reddish-brown spots, the size of an ordinary pin head, thickly placed, not disappearing on pressure. When twelve hours old he vomited dark green mucus, and did so repeatedly till the third day when he vomited 1 or 2 drachms of bright blood, and passed dejecta, the first tarry in appearance, later red and black, or dark red. There was frequent spitting of a substance streaked with blood. On the fourth day he had twelve dejections red or black. After one large one consisting of dark red liquid the extremities became cold, the face cyanosed, and the whole body limp. This condition lasted three-fourths of an hour. On the fifth day there were six dejections of the same character as before, but less in amount; vomiting of a small clot, followed by faintness. There was no further hematemesis. There were four black or red dejections on the sixth day, one on the eighth, one on the ninth, and a green one on the tenth. The temperature varied from 97° to 100°. In two weeks the macules had nearly disappeared. The child remained small, but a year afterwards was living, and considered by the mother to be well.

Depression in skull and facial paralysis. — In the 2 following I believe that the lesions were caused by the forceps. One child was born with a depression in the left frontal bone, 1 by 1½ inches, and ½ inch deep. Within four weeks the bone had returned nearly to its normal contour. The delivery was by means of forceps and traction rods, and considerable force was required. The other child had left facial paralysis, which had so diminished by the eleventh day as to be hardly perceptible. Forceps had been applied when the head was well in the pelvis, with occiput R. A.

I am aware that in this recital of cases there is much that is commonplace, and that from your own experiences, which in obstetrics are larger than mine, you could contribute cases of equal and greater interest. If, however, any of us shall be stimulated by it to more careful observation of the lesions and symptoms of the newborn child, this paper will have a sufficient excuse for being.

OBLIQUE SUBTROCHANTERIC OSTEOTOMY, FOR THE LENGTHENING OF THE FEMUR, AND CORRECTION OF THE DEFORMITY OF FLEXION RESULTING FROM HIP JOINT DISEASE.

BY E. G. ABBOTT, M.D., PORTLAND, ME.

OSTEOTOMY, for the correction of flexion in hip disease, has been performed in various ways on different parts of the femur, for more than a half century, and the results obtained have justified its recommendation in the majority of cases, but until recently no attempt has been made to combine lengthening of the bone with the straightening of the limb.

The earliest operators divided the bone above the trochanter major, or at least above the trochanter minor, meeting with sufficient success to warrant the continuation of experiments in this direction.

Adams' section of the neck of the femur is familiar to all, and from an anatomical standpoint it is certainly correct, but in a large percentage of cases cannot be successfully accomplished, as the neck is absent in many, while in others the pathological changes are so marked that the part is inaccessible.

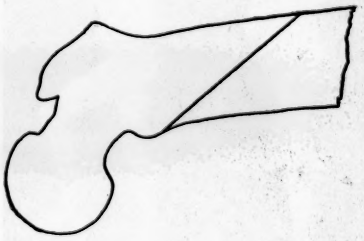
Barton, Sayer, Maisoneuve and others performed the osteotomy lower down, but still above the trochanter minor, and this operation, although much less difficult than Adams' had the same disadvantage of being above the attachment of the ileopsoas muscle, which often caused a return of the flexion.

Volkman's operation, which consists of the removal of a wedge-shaped piece of bone from the trochanter major, offered no improvement over the others, and though reported successful, received but little support, soon falling into disuse.

In the year 1872, Gant devised the operation which bears his name, and the advantage gained by setting free the resistance of the contractured ileopsoas muscle, was at once recognized, and has been almost universally used since. Although this operation removes many of the objectionable features found in the others, it still leaves much room for improvement, and while the flexion is permanently remedied, it causes a considerable shortening of the bone, necessitating the wearing of such a thick patten that it makes walking in many cases, nearly as difficult as before.

Hoffa, Lauenstein, Landeve, König, and other German savants, during the past year have successfully performed the oblique subtrochanteric osteotomy with lengthening of the femur, and strongly recommend it in preference to the so-called Gant operation. A brief outline of their procedure is as follows:

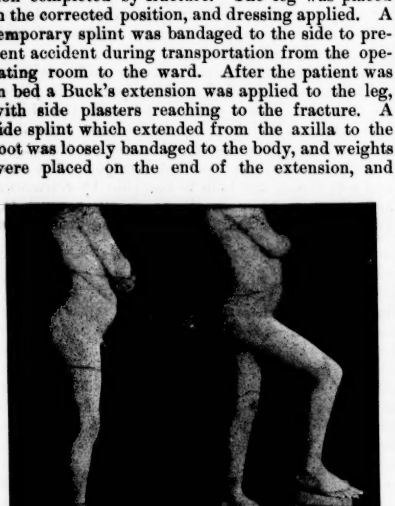
All of the contractured muscles and fasciæ are subcutaneously divided, and the patient is placed on the side, with a cushion between the thighs. The femur is laid bare by an incision some 3 inches in length, the centre of which is from 2½ to 4 inches below the trochanter major. The skin and soft tissues are held to one side by retractors, and the osteotome is placed firmly against the bone, and driven at an angle, varying from 30° to



45° upward and inward through the shaft of the femur until only a thin bridge of the inner, compact tissue remains, when the division is completed by fracture. The leg is then forcibly extended by means of a screw, drawing the smooth-cut surfaces by each other, until the desired length is obtained. The wound is dressed without closing, and a plaster of Paris spica is placed on the leg with an opening over the incision, allowing easy access to it. The leg remains in this position five weeks, after which the plaster is removed, and massage and gymnastics employed, the patient meanwhile moving around with the aid of crutches, the full weight not being borne on the fracture before the twelfth week.

In undertaking this operation the writer felt that it might be much simplified by obviating the use of such powerful force in the separation of the bone, and the destruction of so much of the soft tissues subcutaneously, thereby reducing the liability of infection and injury to the blood vessels and nerves. A description of the method employed by him on a patient where flexion of 45° and actual shortening of the bone amounting to 3½ inches were present, is given below:

The site of the operation was prepared in the usual manner, and the patient placed on the side with a large sand bag between the thighs against the perineum. The osteotome, which was of the same width as the bone, was entered through the skin, and underlying tissues, upon the femur about 4 inches below the upper border of the trochanter major, where it was firmly held at an angle of 30°. It was then driven through the bone as far as the inner compact tissue, when it was exchanged for a narrow one, and the division continued well into this, after which, it was withdrawn and the section completed by fracture. The leg was placed in the corrected position, and dressing applied. A temporary splint was bandaged to the side to prevent accident during transportation from the operating room to the ward. After the patient was in bed a Buck's extension was applied to the leg, with side plasters reaching to the fracture. A side splint which extended from the axilla to the foot was loosely bandaged to the body, and weights were placed on the end of the extension, and



gradually increased. The muscles relaxed in thirty-six hours, when the length and position were regulated and the splint firmly applied, retaining the leg in the corrected position. Measurements were frequently made in order to ascertain if the length remained unchanged, and at the end of the eighth week all apparatus was removed, and the patient allowed to move around in bed. At the commencement of the tenth week he was given crutches and exercised freely. The femur was lengthened 1½ inches, by actual measurement, and the flexion was completely corrected, as the adhesions were broken up by the operation, allowing movement of 15°. Recovery was uninterrupted, union being firm at end of eighth week, and the patient now walks easily with the heel of the shoe raised ¾ of an inch on inside. There are several steps in the operation which the writer considers of importance, and which should be brought to the notice of the surgeon:

Too much stress cannot be laid upon the advantage of making a radeograph, which will enable him to determine the size of the femur, and the exact location at which the osteotome should be entered in order to free the attachment of the ileopsoas muscle to the trochanter minor.

Another point to be considered is the width of the osteotome, which must be regulated by the size of the bone, so as to obtain a clean cut surface by one passage of the instrument. The angle at which it is to be held must also be governed by the size of the femur.

It will be found necessary to use judgment rather than any hard and fast rule in regard to the amount of weight necessary, as it varies with different patients, and must be gradually increased until results are obtained when it can be lessened and held by the side splints.

Clinical Department.

A CASE OF CHIN LEFT POSTERIOR.[1]

BY H. T. SWAIN, M.D., BOSTON,
Physician to Out Patients, Boston Lying-In Hospital.

MRS. A. P., an Italian, thirty-two years old, in her third pregnancy. Previous history negative. Previous labors normal.

When I first saw the patient in the Out-Patient Department of the Lying-in Hospital, November 15, 1900, at 8.30 P.M., she had been in labor about six hours, the membranes having ruptured three hours previously. She did not send for a doctor until she had been in labor for some time, and when first seen by the externe the head was so low that he easily made a diagnosis of face, sending at once for assistance. When seen by Dr. Cary, the out-patient house physician, the presenting part was only a little higher than the position in which I shall describe it.

Abdominal examination showed the back to be to the left, fetal heart loudest in the lower left quadrant, rate 130. During each pain the uterus contracted firmly, and the abdominal muscles were rigidly set, the patient straining violently. The intervals of the contractions were about two minutes, and they lasted a good minute. Visual examination showed considerable bulging of the external genitals during each pain.

Vaginal examination showed the os fully dilatable, membranes ruptured, and a face presenting about one and a half inches from the introitus, with the chin left and posterior. During a pain the head descended very little. There was not the least rotation. What little was gained during the pain was lost in the interval, for the head receded immediately. I tried during two or three pains to rotate the head by pressure with the hand against the posterior ramus of the lower jaw, but was unable to accomplish anything, the head being firmly wedged into the excavation. Dr. Cary's attempts

[1] Read before the Obstetrical Society of Boston, January 15, 1901.

to flex, and then to extend and rotate had been without result.

The patient was now given full surgical anesthesia, and pressure with the hand, and then a single forceps blade failed to rotate in the least. The forceps was then applied and rotation attempted, some traction at the same time being used. However, the head being so firmly wedged in, the forceps could not be well enough applied to allow much pull, and even had I been able to get a firm application, I should not have felt like pulling much because it was evident that the unrotated head could not come down without great violence to the soft parts. I was unable to turn the head in the least by any of the methods mentioned after careful trial. I knew the child was alive, for every time that I accidentally touched her lips she sucked my finger. I disliked to think of perforation under these circumstances.

Making another attempt at manual rotation after taking off the forceps, I noticed that, while pulling hard under the chin to increase extension, the head seemed to recede a little. Following this lead, by extreme extension, the middle finger under the chin, the thumb against the forehead, and gentle pressure upward, the head was gradually slid up, and placed above the brim between an assistant's hands holding it through the abdominal wall. I then wondered as to the next step. I knew that a speedy delivery was essential to the child's life for the cord was pulsating feebly. I felt that it would be hard to bring the head down with the occiput presenting because of the extreme moulding and because the forces which made it come down as a face, would still be likely to extend the head. Feeling a foot without putting my hand above the lower uterine segment, I brought it down, my assistant turning the head up at the same time. Delivery was easy as a half breech.

The child resuscitated with some difficulty. Her face was extremely cyanotic and edematous, the lips, eyelids, and nose bulging a great deal. There was a complete subconjunctival ecchymosis in each eye. The baby weighed nine pounds, and is now well, although there is still a noticeable retraction of the head. The mother was uninjured and had a normal convalescence.

Other methods of operation have been advised. McLean, in two cases, has converted a posterior chin to an anterior occipit in the pelvis. In this case the large moulded head so filled the pelvis that it would have been necessary to disengage it before turning.

Symphyseotomy has been advocated.

I realized the dangers of replacing the head above the brim, and turning in a dry uterus, and should not have used force to accomplish them. It seems to me that the ease with which the head pushed back was due to the fact that the patient, by her own muscular force, had crowded the head down and that the uterus was not in the state of retraction that it would have been, had it been forcing the head down.

I shall attempt to draw no conclusions from this single case. It is interesting to me as showing how easily a head well down in the pelvis in a position impossible of delivery without violence, could be replaced above the brim. It was interesting also as showing the impossibility of the commonly accepted mechanism in this case, for while the head was so far down that it could advance no farther without violence, the chin was not impinging against anything.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 14, p. 335.)

WATER SUPPLY AND SEWERAGE.

A Process for Removing Iron from Water.

Messrs. Linde and Hess[24] describe a process for removing the iron from water by treating it in a filtering vessel filled with wood shavings free from turpentine, and impregnated with oxide of tin. The hydrated oxide of iron resulting from this process is retained by the shavings as a brownish red deposit. The shavings are renewed every two months.

Schumburg's Process for Purifying Water.

Pfuhl[25] states that this process consists in adding .06 gramme of free bromine in the form of bromide of potassium solution to each liter of water. A like volume of 9% solution of ammonia is added to remove the bromine and make the water palatable. This process is advocated for use in the case of suspected waters, epidemics, ships' tanks and armies in tropical countries.

Septic Tanks for Sewage Disposal.

Messrs. Alvord & Shields,[26] of Chicago, in commenting upon the use of septic tanks for sewage disposal, make the following statement:

"A good deal of this enthusiasm has arisen because of the unwillingness of experimenters to publish their failures, or in any way record experiences which did not come up to their expectations. The literature on this subject is oftentimes misleading, and must be read in the light of personal examination or practical experience to be of any benefit. As a sample of the overconfidence now being displayed, the interesting proposition of a village has been noticed which intends to place its septic tank and contact beds in a public park overlooking a beautiful lake, floor it over, and provide seats so that it may become a playground for the misses and children of the neighborhood, and a resting place for the pleasure seeker. Such overconfidence has arisen from repeated statements in print that no nuisance results from the process. The statement is not

[24] Ges. Ingenieur, April 15, 1900, p. 105.
[25] Zeitsch. f. Hyg., 1900, p. 53.
[26] Engineering Record, March 16, 1901, p. 247.

untrue, in general, but one who had visited or operated many of these tanks would not recommend them for sites for lovers' rests or health retreats unless given the most expert management and attention. The writers have operated several septic tanks during the past three years, one of which has had close attention during the whole of that time. The first season it was thought a simple affair to manage it; the second season it was concluded nothing was definitely known about its operation at all; the third season, in humbleness of spirit, it was realized that something was being learned about it, and in the course of another season it is hoped to learn even more.

. . . . . .

"How is it then that a septic tank of fixed dimensions succeeds at all, as in so many cases they unquestionably have, and why are some of them such undeniable failures? We think it is, so far at least, purely a matter of chance. One septic tank has been observed which was carefully designed, which has given as high purification as 80% of organic matter removed; while another tank of the same design in a neighboring city of the same size, with about the same quantity of sewage and with details almost precisely the same, has not effected so good purification, perhaps not half as good, on the average. If this is true in such an instance, how is it possible that tanks hitherto used for chemical precipitation or cisterns hitherto used for pumping reservoirs, are going to be turned into successful septic tanks at a moment's notice, and for all kinds and quantities of sewage?"

London Sewage.[37]

The following figures relate to the sewage of London which was treated in 1900 at the two outfalls at Barking and Crossness upon the Thames:

	Barking. Gallons.	Crossness. Gallons.	Total. Gallons.
Sewage treated,	58,209,600,000	43,321,200,000	101,530,800,000
Maximum daily flow,	316,202,400	215,958,074	
Minimum " "	87,372,000	77,547,948	
	Tons.	Tons.	Tons.
Lime used,	12,999	7,455	20,454
Sulphur, iron,	2,918	2,011	4,929
Sludge sent to sea,	1,574,000	798,000	2,372,000
Average per week,	30,270	15,346	45,616
Screenings,	4,176	813	4,989

The increase in the quantity of sewage treated, over that of the previous year was 8,315,023,000 gallons, and in the quantity of sludge sent to sea 82,000 tons.

INDUSTRIAL HYGIENE.

Industrial Lead Poisoning.

Dr. Legge, Medical Inspector of factories for England, contributes a paper[38] on Lead Poisoning, the data for which were tabulated as the result of a law of 1893, which requires every physician when called to a patient whom he believes to be suffering with lead poisoning, contracted in a factory or workshop to notify the case at once to the inspector of factories. A similar obligation is imposed upon the occupier or owner of the factory, thus constituting a close analogy between this law and that which requires notification of infectious diseases. As one main object of an infectious disease notification act is the protection of the community against such a disease as diphtheria, so repeated notifications of lead poisoning in the same trade may lead to an investigation, and to the adoption of regulations for the protection of the operatives.

The principal symptoms referable to lead poisoning were those of the digestive system, anemia, headache, paretic, encephalopathic, rheumatic and uterine.

The occupations were the following: smelting, brass working, sheet lead, printing, file cutting, plumbing, enameling of hollow ware, white lead working, red lead, earthenware, lithotransferring, glass, enameling of iron plates, electric accumulators, paints and colors, coach painting, ship building and other industries.

The methods of exposure varied, but were chiefly to the fumes, the dust, and the handling of metallic lead and paint.

The writer urges the importance of cleanliness, and not simply cleanliness of the hands, but also of the teeth, nails and clothing.

He also insists upon a periodic medical examination of workmen, by a competent medical examiner who should have power to suspend any one temporarily, or permanently, from work whom he may find is specially susceptible to poisoning.

This examination should include thorough inspection of the condition of the teeth and gums, of the pupils and muscles of the eyes, the color of the conjunctiva, the presence or absence of tremor or hysteria, and the resistance of the extensors of the wrist to forcible flexion.

A table is presented relating to 1130 cases of lead poisoning which were reported in 1899. It does not include cases reported among painters and plumbers, since the acts do not apply to these occupations.

The Dangers of Cutlery Grinding.

Dr. Moritz, of Solingen,[39] presents a statement of the dangers to which knife-grinders and those employed in similar occupations are subjected. The mortality of men employed in this work over twenty years of age, is three times as great as that of the general population of the same ages. Men in such employment rarely live to the age of fifty. The author, after examining 1,250 employés in such work, found only 16% in a healthy condition.

This industry has increased in Solingen from 1,581 workmen in 1860 to 4,027 in 1898, notwithstanding the danger to which they are exposed. The dust consists not only of the steel dust from the knives, scissors, razors, etc., but also the dust of the mill-stones upon which they are ground, which are reduced in size one-half in four weeks' usage.

The mortality from diseases of the respiratory organs among these workmen constitutes 72.5% of the total mortality, as compared with 35.3%

[37] Engineering Record, March 16, 1901, p. 246.
[38] Journal of Hygiene, vol. 1, No. 1, 1901, p. 96.
[39] Central b. f. allg. Gesundheit, 1900, p. 283.

for other occupations of the same ages. The prevention of these dangers is accomplished to some extent by moist grinding, covering the mill-stones, aspiration of the dust by various forms of apparatus, providing cuspidors, prohibiting alcoholic liquors, prescribing baths and personal cleanliness.

Dr. Rompke, of Solingen,[30] contributes a paper on the subject, in which he compares the workmen at Solingen with those at Sheffield, England, in the same industry. He compares the advantages and disadvantages in each place, and says the mortality from diseases of the chest among the grinders at Sheffield is only 61.7% of the total as compared with 72.5% among the same class of workmen at Solingen. He attributes this to several causes, among which are the position of the body while at work, the absorption of less dust at Sheffield, more regular habits, and better housing.

The Gannister Disease.

Birmingham describes this disease as produced in gannister works, or establishments for the manufacture of bricks from a hard, compact material occurring in clay. It is so hard as to require blasting, and is ground in mills. Its manufacture is attended with fine dust, the breathing of which leads to the formation of fibroid tissue.

The mortality among gannister miners is 42 per 1,000; among grinders, 180 per 1,000 and among brickmakers, 22 per 1,000. The author advises as methods of prevention: (1) The employment of adults only. (2) Medical examination before beginning work. (3) Medical examination every 3 months. All employés having bronchitis to stop work until recovery. (4) The use of respirators. (5) Frequent inspection of works. (6) Automatic machinery when practicable. (7) Use of water to allay dust. (8) Efficient ventilation.

Immunity of Oil Merchants to Plague.

Soir[31] noticed that workers in oil do not contract plague. He experimented with rats. Taking a rat from a house infested with fleas, he killed it and placed it in a cage with two other rats. The skin of one of these rats had been oiled and the other left in its normal condition. All the fleas migrated to the body of the dry rat, not one being found on the oiled rat. To this aversion of fleas to oil he thought it probable the workmen owed their immunity to plague. Galli-Valerie[32] came to similar conclusions relative to the rôle played by rats and fleas in spreading plague.

MUNICIPAL SANITATION.

Street Oiling as a Health Measure.

One of the greatest foes to good health, both indoors and outdoors, is dust; not only on account of its irritating qualities when taken into the air passages, but also on account of its property of transmitting infection. Any measure like street watering which will prevent dust from rising into the air is a health measure.

[30] Viertelj. f. gericht. med. u. öff. Sanitatswesen, October, 1900.
[31] Rev. Scien. March 31, 1900.
[32] Central b. f. Bakt. January 6, 1900.

Recently, on some of the principal railway lines, petroleum has been successfully employed for the purpose of making railway travel in the summer more comfortable and less inimical to the health of the passengers.

Mr. O. W. Longden[33] discusses the subject of oiling roads in Los Angeles, California, a dusty region where the water supply in summer is deficient. The experiment was first tried in 1898, upon six miles of road. In 1900 fifty miles were oiled. He concludes that well oiled roads are practically dustless, and that such roads are a boon in any country.

The demand for dust-free roads is increasing. The superiority of oiling over watering consists in the lower cost of oiling, and in the fact that it can be used in places where water cannot be had as in a country with deficient rainfall. Oiled roads are free from dust in summer and from mud in winter, and require only two or three applications of oil in the first season. About 60 barrels of oil per mile were used for a space 12 feet wide, on the first application. The second application required about 40 barrels per mile, and the third still less.

The oil cost from $1.10 to $1.25 per barrel, and 25 cents for delivery, the total cost being about $150 per mile for a season. There is a disagreeable odor at first, but this is not permanent.

Underground Bakeries.

In five districts of London[34] there are 315 bakeries, of which number 245 are situated underground.

The city of Manchester, England, has 514 bake houses, of which 207 are underground. It appears to be a common practice for a baker to rent a house and convert the cellar into a bakery.

According to Dr. Walsh, "the larger part of the national output of breadstuff is prepared in premises that would not be passed as fit for slaughter houses."

(An underground bake house should not be tolerated. On the contrary, the preparation of this most important article of food should be conducted under strict sanitary conditions, namely, abundance of light, good ventilation, absence of rats and all other vermin, and above all absolute cleanliness in every department of the work. It is also quite as essential that the workmen should be entirely free from every kind of infectious disease, as it is in the case of the production and sale of milk. — EDITOR.)

Baths and Bathers in London.[35]

Under the Baths[35] and Washhouses Acts, 2,532 public baths are in existence, 887 first class, 1,659 second class, and 85 swimming baths. The total number of baths in 1897–1898 was 4,463,109. The finances showed a deficit of £83,360, or $333,000.

[33] Engineering Record, November 24, 1900, p. 490.
[34] The Fabian Tracts, No. 94, London, December, 1900; see also a paper on the same subject by Dr. E. W. Hope, medical officer of health of Liverpool, in the Sanitary Record of August 31, 1900.
[35] Returns of Local Government Committee of the London Council, November 21, 1899.

HOUSEHOLD HYGIENE.

The Effect of Air Moisture on the Health of Persons in Enclosed Spaces.

Many sanitary experts still retain a belief in the necessity of a large ratio of watery vapor in the air of apartments, in order to provide for the comfort and health of the inmates. In many plans for ventilation it is customary to arrange artificial means for moistening the air; and unless great care is taken in attending to these appliances, their use entails many disadvantages. The author, Nussbaum,[36] maintains that in the case of rooms in which the temperature reaches 20° C, artificial means for providing moisture in the air are unnecessary. His observations, which agree with those of Wolffhügel, have led to the belief that dry air in which the vapor reaches only 30% of complete saturation is in every way better than air saturated with moisture. Several authorities are cited in support of this opinion. It is plain that the degree of moisture necessary to insure comfort depends in some degree upon the temperature of the surrounding air, and hence it is useless to specify a fixed amount of moisture to satisfy all conditions. At the normal indoor temperature from 40% to 60% of saturation suffices; but for hot rooms and in cases where much exertion is necessary, this degree of moisture may be diminished 10%.

It is possible that it will generally be better to dry the air required for ventilation rather than to moisten it, because the superfluous moisture may be deposited on cold surfaces, and thus afford lodging for dust and micro-organisms.

Damp air may be regarded as unwholesome, and hinders the healthy action of the skin.

Carbonic Oxide in Dwelling Houses.[37]

The discussion relative to the poisonous qualities of water gas which began in America nearly twenty years ago, and was followed by a parliamentary investigation in England, is now being taken up in Germany. Dr. Sachs alludes to the fact that the deaths from this gas usually occur in enclosed spaces and also commonly in dwellings. These deaths also usually occur from mixtures of gas with the air in which the volume of the gas is often very small. He discusses the various measures necessary to prevent the different sources of danger, and shows that the evils arising from the use of water gas are so great as to have induced experts to advise that its use in dwellings should be prohibited.

VITAL STATISTICS.

Reduction in Death Rate.

Dr. Corfield, in an address delivered at Paris before the French Society of Hygiene,[38] shows that the death rate of London, as well as that of England and Wales, has fallen as follows, coincident with the enactment and execution of sanitary laws:

LONDON.

	Average Death Rate per Annum.
1851-1870	24.1
Nuisance Removal Act, 1855. Sanitary Act, 1866.	
1870-1890,	22.5
Public Health Act (London), 1891.	
1891-1895,	20.2
1895-1899,	18.8

ENGLAND AND WALES.

1849-1875,	22.4
Public Health Act, 1875.	
1876-1880,	20.8
1881-1885,	19.4
1886-1890,	18.9
1890-1895,	18.7
1896-1898,	17.4

ENGLAND AND WALES.

Annual Death Rates per Million Living.

	1861-1870	1871-1880	1881-1890	1891-1895	1896-1898
Scarlet fever,	972	716	334	182	146
Typhoid and other fevers,	885	482	235	185	174
Diarrhea,	1,076	935	674	630	769
Consumption,	2,475	2,116	1,724	1,464	1,321

Vital Statistics of Prussia.[39]

The close of the century and the celebration of the bicentenary of the Kingdom of Prussia makes an appropriate time to review its vital statistics. The last quarter of a century is marked by a decline both in birth and death rates, and by a relative increase of city population compared with that of the country districts. The birth rate was at its maximum (42.8 per 1,000 of the population), in 1875, and has nearly reached the minimum of 35.3 which prevailed in the year after the Franco-Prussian War (1871). The death rate has also fallen from 30 to 23 per 1,000. The population of the towns has increased about 75%, and that of the country about 15% in twenty-five years.

The infant mortality is greater in the towns, and also greater in the east than in the more civilized west. The mortality of male adults is greater in the coal and iron districts. The birth rate is higher in the country. There is no evidence of city degeneration, "though in many places there are physical differences founded on occupation in youths due for military service, which are against the towns."

The more highly educated, though not physically inferior, do not show that corporeal superiority which might be expected from their more favorable circumstances.

Increase of Cancer in Germany.[40]

The present increase of cancer in Germany, if continued at the same rate to the end of the century, will give a death rate of 22 per 10,000, which is the present consumption mortality of Germany, and if by that time the death rate from consumption shall be reduced to 5 per 10,000, the destructiveness of the two diseases will have been reversed. There is, however, no reason for supposing any connection between the two diseases, since the people of Saxony and Baden, while sharing in the increase of cancer, show no decrease in consumption.

In general, in Prussia, the cancer mortality in

[36] Ges. Ingenieur, July 31, 1899, p. 23.
[37] Deutsch. Viertelj. f. öff. Gesund., 1899, p. 480.
[38] Journal of Sanitary Institute, October, 1900, p. 467.
[39] Hygien. Rundsch, 34.
[40] Zeitschr. f. Hyg., xxxii, p. 235.

the towns is twice as great as it is in the country, 7.9 and 3.8, and the mortality from this cause in large cities is greater than that of small ones. Some places, like Stralsund and Schleswig, have twice as many deaths from this cause as occur in Treves and Coblentz.

The Death Rate of Buenos Ayres.

Dr. Carrasco[41] presents some very striking figures, showing a very marked diminution in the death rate of Buenos Ayres since the introduction of pure water and a sewer system. The general death rate fell from 30 per 1,000 in 1890 to 17.1 in 1899, and the typhoid death rate fell from 1.15 to .14 in the same period.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of January 15, 1901, the president, DR. ALFRED WORCESTER, in the chair.

DR. F. W. TAYLOR read, by invitation, a paper entitled

PATHOLOGY OF THE NEWBORN.[1]

DR. HIGGINS: Recently I saw in a report of a very interesting case of hemophilia,[2] from the autopsy of which were isolated several forms of bacteria, from which various interesting conclusions were deduced, among others, that hemophilia neonatorum is the result of infection — a view that might throw much light on such cases.

DR. ENGELMANN: Some time ago I saw with Dr. Williams, of Johns Hopkins Hospital, a case of delayed respiration, in which a most vigorous spanking worked to perfection. I would like to call attention to the value of a smooth square-ended catheter to free the throat of newborn infants from mucus. When I was studying in Berlin it was the custom that all students should be equipped with such a catheter. This is certainly more advantageous than blowing air into the lungs.

DR. J. G. BLAKE: I would like to say a word of warning as to heroic treatment being applied to cases of delayed respiration. I remember a case in which hot air, combined with very vigorous friction, resulted in most of the cuticle being rubbed off the child. Spanking of course does no harm generally; but the possibility of black and blue spots being left should be borne in mind, as they are something that parents object to most heartily, forgetting they resulted from efforts to bring the child to life. A man who has never seen a case of hemorrhage from the umbilicus can have no conception of how persistent a thing it may be, in spite of every kind of treatment. I would suggest as a possible substitute for the catheter used to aspirate mucus from the trachea, the use of the little suction syringe used to remove tenacious mucus from the cervix.

DR. C. M. GREEN: The treatment of asphyxia of the newborn should depend upon the degree of asphyxia. If the child is livid, it will generally respond to cutaneous stimulation, or to the shock of the alternate hot and cold plunge, after the trachea has been freed from mucus. But when in pallid asphyxia the reflexes are lost, and the hot and cold plunge is not only useless, but injurious. In pallid asphyxia the pulse is feeble and rapid, and the child is best treated, in my opinion, by immersion in hot water, and by direct mouth to mouth insufflation of air. Sometimes a few drops of brandy subcutaneously are advisable. The French have a tracheal catheter of silver, by means of which the trachea is freed from mucus by the help of a rubber bulb. But in my experience, the mucus and other inspired fluids are best removed by suspending the child by the feet. It has always seemed to me that Schultze's method of resuscitation exposed the feeble child to too great loss of heat.

DR. BLAKE: I should like to ask Dr. Taylor whether in his series there were any cases of apparently healthy, naturally born children dying suddenly without any cause that could be found out. I remember such a case where the autopsy showed absolutely nothing.

DR. W. E. BOARDMAN: I remember a similar case, in which the healthy child of a multipara, born after a simple natural labor, died on the second day, with no apparent cause.

DR. G. J. ENGELMANN: I have got the best results by keeping the child in hot water with the heart exposed, and then from time to time pouring cold water over the heart and head, so as to get the mechanical as well as the thermal shock.

DR. TAYLOR: In regard to melena I think that the general feeling now is that it is of infectious origin. Suspension, as far as I have tried it, has proved very successful. It should, however, be prolonged enough to allow the child to take a number of breaths. I agree with Dr. Green, that keeping up the vital heat is most important in the pallid children. I keep them in warm water, taking them out only occasionally to sprinkle them with cold water.

DR. H. T. SWAIN, by invitation, presented a paper entitled

A CASE OF CHIN LEFT POSTERIOR.[3]

DR. TAYLOR: I should like to ask, as Dr. Swain has spoken of the child's head being retracted some months after birth, whether there was any mechanical cause in the formation of the child to account for the presentation.

DR. SWAIN: Apparently the retraction was merely the result of muscular strain.

DR. J. B. SWIFT: In the 1 case of face that I have seen, I managed to change it to an occiput anterior by grasping it and bringing it down. I have been surprised to see in a recent article in

[41] Boletin Dem. Argentino, vol. 1, August, 1899, p. 31.

[1] See page 347 of the Journal.

[2] Nicholson, American Journal Medical Sciences, October, 1899.

[3] See page 352 of the Journal.

the *New York Medical Journal* that it is an easy thing under deem anesthesia to push the head back to correct such malpositions.

DR. C. M. GREEN: I think that would depend on the amount of uterine retraction. If the uterus is not too dry and retracted, the head may be pushed up and flexed, or internal podalic version may be performed. I have succeeded in doing this in 1 of the 4 cases of low face presentation I have seen. But this would be hazardous, if not impossible, if the uterus is markedly retracted. It is difficult to believe that a fully extended head in the pelvis can be flexed, unless the head is relatively small. But Malcolm McLean reports 2 cases in which he has successfully delivered in this way. If the low face presents the chin anteriorly, delivery by forceps is not difficult. But when the chin is posterior, and the head cannot be flexed nor be pushed up, forceps may secure an anterior rotation of the chin. Failing this, nothing remains but symphyseotomy or craniotomy.

DR. F. A. HIGGINS: I have seen but 1 face case, and that took care of itself. I think such cases would often do well under the relaxation that comes with deep anesthesia. I have often noticed the ease — too much so, sometimes — with which, under anesthesia, one can reflex a partially extended occiput posterior, which was apparently fixed, without ether.

DR. BOARDMAN: The secret of success in the writer's case seems to lie in the fact that the uterus was not retracted. Experience has shown that such cases are generally fatal with a fully retracted uterus, even under deep anesthesia. In the 2 face cases that I have seen, the labor took care of itself in one, and in the other I resorted to version at an early stage.

DR. ALFRED WORCESTER: I agree with the reader that the fortunate issue depends on whether the uterus be fully retracted or not. In this case it had also much to do with the ready skill and discretion of the operator in following nature's lead. I was glad also of the reluctance with which he spoke of doing perforation. A few years ago any young operator would have felt justified in perforating in such a case. Consideration for the unborn child is certainly increasing. I am therefore much surprised that Dr. Green should not have included Cæsarean section among the possible alternatives. To me in such a case, with the uterus in tonic contraction, Cæsarean section offers much less risk to the mother than does version, not to speak of the much greater safety of the child.

DR. BLAKE: I was going to bring up that same question myself. My feeling is that symphyseotomy is going to be relegated to obscurity, now that the perfected Cæsarean section is becoming an operation of such safety. I have never got over my old feeling that the danger, by a symphyseotomy, of making a woman a partial cripple for life is to be avoided if possible.

DR. GREEN: I am by no means an opponent of Cæsarean section, or an advocate of symphyseotomy. Both operations have their proper indications, and I think symphyseotomy should be employed only in those cases in which the woman is either septic or in a poor condition for an abdominal operation. High faces can usually be dealt with by version, or, after flexion of the head, by high forceps. But when the head is in the pelvis, and extended to a face, chin posterior, when the uterus is in such a condition of retraction that the head cannot be pushed up and version performed, or when the head is so impacted that anterior rotation of the chin cannot be accomplished with the hand or forceps, I do not believe that the mother is in any condition for a safe Cæsarean operation. Moreover, in such cases the child would generally be dead, and might as well be delivered by craniotomy; but if the child is alive, symphyseotomy would then be preferable to Cæsarean section, in my opinion, as involving less risk to the mother. The results of Cæsarean section are not good when the patient has been long in labor, no matter how skilful and clean the operation.

DR. WORCESTER: I do not yet understand how Dr. Green can exclude Cæsarean section from the alternatives. I maintain that if symphyseotomy could be done, Cæsarean section should be. As the head is wedge-shaped when in the pelvis, I cannot imagine any very great difficulty in delivering it by Cæsarean section, either by pulling from above or pushing from below. I believe the dangers of a clean Cæsarean section are much less than those of a possible rupture, and certainly less than those of a symphyseotomy.

Recent Literature.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by ALBERT H. BUCK, M.D. Volume I. Illustrated. Pp. 799. New York: William Wood & Co. 1900.

A new wholly revised and rewritten edition of this notable work is appearing under the editorship of Dr. Albert H. Buck. The first volume gives promise of a complete cyclopedia of medicine, which will be of very great value, not only as a work of reference, but also as a source of original information on many subjects. The individual articles are written by experts, who have evidently been carefully selected for their special tasks. The success of a comprehensive book of this character depends in great measure upon the ability of its editor to enlist equally competent men in the preparation of articles. In this, Dr. Buck appears to have been peculiarly fortunate, judging from the names which appear as department advisers and also as individual contributors.

This first volume includes A and a part of B. The illustrations are abundant and helpful, and when necessary for clearness are usually, though, we regret to say, not always, printed on special

paper. The microphotographs of bacteria, for example, are excellent, and admirably reproduced. The type, though rather small, is perfectly clear, and the subjects are conveniently placed in heavy type at the head of each page. In general the book fulfils all the requirements of an encyclopedia, and will unquestionably fill a place as a reliable epitome of the rapidly growing and diversified knowledge now included under the head of medical science. We shall look forward with interest to the later volumes, which, it is hoped, may appear at reasonably short intervals.

Forty Years in the Medical Profession: 1858–1898. By JOHN JANVIER BLACK, M.D., Member of the College of Physicians of Philadelphia; Member of the Delaware State Medical Society, etc. Philadelphia: J. B. Lippincott Co. 1900.

This is a volume of 498 pages, covering the experience of a physician who has observed much during an active practice of forty years. The book abounds in reminiscences of well known men of the past fifty years, and many facts are related in entertaining style of their sayings and doings. The state of medical knowledge forty years ago is depicted from the point of view of an eye-witness, and finally a phenomenal amount of information is given on foods, beverages and fruits. It is natural that most of the text is a matter of common knowledge, nevertheless no one could read it from cover to cover without gleaning many facts which he did not know before. The book is rather too long, but most of it is entertaining and instructive, and it permits, fortunately, of judicious skipping. It is sufficiently well bound, and is printed in excellent clear type.

Obstetric and Gynecologic Nursing. By E. P. DAVIS, A.M., M.D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. Pp. 402, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This book, intended as a guide and textbook for the obstetric and gynecologic nurse, is an attractive volume with respect to its size, style and contents. The text is written in a plain and concise manner with clear and simple directions for the nurse's conduct, while the book does not abound in a large amount of material which the nurse can not and should not be expected to know. The obstetrical nurse of today should and does have special technical training and skill, but this training when best given is confined to the duties of the nurse herself, with respect to the care of the patient, her assistance of the attending physician, and the care of such emergencies as may arise in his absence. This the author evidently kept in mind throughout and has attained to a marked degree in his work; consequently the book is not an abbreviation of an obstetric textbook, but the best book on obstetric and gynecologic nursing that has come to our notice.

The book is divided into two parts; the first part, comprising 240 pages, is devoted to obstetric nursing and care of the young infant, and part two, of about 120 pages, is confined to gynecological nursing. There is also an excellent appendix, of about 30 pages, devoted to dietary and to the preparation and sterilization of surgical supplies.

Throughout this book the author has wisely limited his descriptions to directions for the nurse's work, with no attempt to indicate reasons or details for operative procedure. Much good advice is offered the nurse against the assumption of too much responsibility in certain conditions, such as the examination for lacerations after delivery, and the taking of unwritten orders from the physician in the treatment of cases after abdominal section.

Manual of the Diseases of Children. By JOHN MADISON TAYLOR, A.M., M.D., and WILLIAM H. WELLS, M.D. Second edition, thoroughly revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The entire work has been thoroughly rewritten and much new material added. In the preface to the first edition the authors stated that they did not claim that their book was a treatise on the maladies of childhood, but they presented it as a practical working manual for the student and practitioner. The first edition, however, was well worthy the title of "treatise," which the authors so modestly disclaim. The second edition, a volume of more than 800 finely printed pages, deserves this title even more, and is far more complete than many books on the diseases of children with more ambitious titles.

The arrangement of the work, is on the whole, fairly satisfactory, although diseases and symptoms are, to a certain extent, confused. Appendicitis is strangely enough classified under "Diseases of the Peritoneum." Tuberculosis of the peritoneum and tubercular meningitis are not classified with tuberculosis as they should be.

It would seem better to have taken up membraneous croup, that is, laryngeal diphtheria, with diphtheria instead of with diseases of the respiratory organs. To take it up with them only perpetuates the confusion of former years. Laryngismus stridulus belongs with the diseases of the nervous system rather than with those of the respiratory organs. We can see the possible explanation for placing exophthalmic goitre among the diseases of the nervous system, but hardly any for placing myxedema there also. Tetanus belongs among the "Specific Infectious Diseases," rather than among those of the nervous system. Other exceptions might also be taken to the arrangement. Perhaps more have been taken than seem advisable in a review. We feel, however, that much harm may result, especially to students, from getting a wrong point of view in the beginning. The relative amount of space given to different diseases is, in many cases, also peculiar, for example, diphtheria has more than thirty pages, and general tuberculosis less than one.

The pathology of disease has probably received

as much attention as the limited space warranted. The sections devoted to symptomatology, however, are sketchy and far from clear. Those devoted to diagnosis are incomplete and unsatisfactory. The newer and more accurate methods of diagnosis have hardly been given due prominence. Much space has been given to treatment, which is very complete. There is a tendency here, however, to glittering generalities and to long lists of drugs "which may be used." We fear that the student may often be confused, and feel that less but more definite treatment would be more useful to him.

The chapter on the feeding and food of infants and children is one of the best in the book. It is well up to date and is written in a very practical manner. Much attention is devoted to the home modification of milk while laboratory feeding is not neglected. This chapter cannot fail to be most useful to the practitioner. The chapter on the diseases of the digestive organs is also good.

We cannot, however, agree with the classification. The great importance of diet rather than of drugs in the treatment of these diseases is duly emphasized. The standard of the rest of the book is uniform, but on the whole is not quite up to that of the chapters mentioned. The authors' point of view in many instances seems that of adult medicine rather than that of pediatrics. The chapters on the ear and skin are especially commendable.

As a whole, however, the work is very satisfactory. It is well worthy the careful study of both student and practitioner, and cannot fail to prove of great value to both. We do not hesitate to recommend it.

The Essentials of Practical Bacteriology. An Elementary Laboratory Book for Students and Practitioners. By H. J. CURTIS, B.S. and M.D. (Lond.), F.R.C.S., Late Surgical Registrar, University College Hospital; formerly Assistant to the Professor of Pathology, University College, London. London, New York and Bombay: Longmans, Green & Co. 1900.

This book represents one more addition to the growing list of laboratory manuals for students of bacteriology. It deals not only with the bacteria proper, but includes some consideration of the moulds, fermentation, malaria, psorospermosis and cancer. The published work of Plimmer on cancer is extensively quoted and his results are apparently accepted by the author. The text of the book seems to fairly well represent the main points in our knowledge of bacteria and of the other subjects with which the book deals. This is to be expected, because with so many other books on bacteriology available for reference it would be gross carelessness for an author to make many erroneous statements. As compared with these others, this book presents no special improvement. It surely does not fill any general and widely felt want. The illustrations are numerous. Practically all of the figures of bacteria are made from diagrammatic drawings. They are much inferior to good photomicrographs.

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PLAGUE IN SOUTH AFRICA.

AT the beginning of the appearance of plague at Cape Town grave apprehensions were at once felt lest the disease should prove difficult to eradicate. This fear has proved in great measure well founded, owing to the peculiarly disadvantageous conditions under which the health authorities are obliged to work, chiefly because of the ignorance and prejudice of a large portion of the population.

It is said that upwards of twenty thousand people from the seat of war have sought refuge in Cape Town, which is none too well able to care for its own population. No proper provision could, under the circumstances, be made for these refugees, among whom were women and children, with the natural result that they became a source for the inception and spread of disease. As regards the sanitation of Cape Town, a correspondent in a daily paper writes, perhaps rather extravagantly, that it is one of the dirtiest, if not the dirtiest city in the world, and that the system for the disposal of the city's refuse is the same as that in vogue in Jerusalem two thousand years ago. However this may be, it is safe to assume that so mixed a population as that of Cape Town, of which whole classes have their own peculiar superstitions, must be a constant menace to the health of the community at large. The Malays appear to be the most difficult class to control, owing to the practical impossibility of forcing them to abide by the ordinary laws of burial. These Malays live in the midst of the city, which is now densely populated, so that the tracing of a disease like plague in its early stages becomes a matter of very great difficulty. It is said, furthermore, that the peculiar religious doctrines of these people prevent the employment of a regular undertaker, custom demanding that, regardless of the cause of death, the corpse must be borne through the streets in an open coffin to the grave, where it is left exposed

over one night. The friends of the deceased visit the cemetery under these conditions and deposit near the grave various edibles. This exceedingly unhygienic custom has been found difficult to suppress, and a considerable conflict with the authorities has resulted. The Kaffirs are also a problem. They live in the most squalid fashion, and naturally without an idea as to cleanliness. The government has attempted to collect them in one locality, thereby permitting a more perfect supervision than would be possible were they allowed to live in places of their own choosing.

In such a population it is easy to see how fertile a field is provided for the spread of plague, and although the disease may hardly as yet be said to have reached grave epidemic proportions, nevertheless the continued reports of fresh cases, ten for example on April 8th, and four of these among Europeans, is not altogether reassuring. Hope is expressed that certain gales from the southeast, which are ordinarily prevalent at this period of the year, may lighten the situation by clearing the atmosphere and washing away filth. It is, however, sufficiently apparent that an ultimate eradication of this disease or any other of a similar sort, must come from a complete regulation of the hygiene of the city, no douht in this case difficult of accomplishment, but certainly possible, if sufficiently active measures be taken, and sufficiently stringent laws enacted.

REPORT OF BROOKLINE, MASS., BOARD OF HEALTH.

Whether inspired by the example of larger and more thickly populated neighboring cities, or aroused by a consciousness of their own immediate needs, it is evident that suburban towns are every year making decided progress in municipal sanitation. Good work has been done in many localities as communities have awakened to their responsibilities in dealing with those problems of disease which come under public jurisdiction. We have before us the Report of the Board of Health of the town of Brookline, Mass. It contains the usual facts and figures regarding mortality and disease and alludes to various improvements in the work of the Board during the year. Owing to the prevalence of diphtheria last fall and during the early winter an added building for an isolation hospital was supplied by the erection of a somewhat hastily built structure which, however, answered its purpose sufficiently well. Of the 161 patients admitted to the hospital during 1900, 137 had diphtheria and 14 scarlet fever. Of the 137 diphtheria patients all except 4 recovered (a mortality of less than 3%), and of the 14 scarlet fever patients, the whole number recovered. To the use of antitoxin, provided by the State Board of Health, the very small death rate in the diphtheria hospital is in large part due.

Disinfection after a death from consumption is required, and the free bacteriological examinations to determine an early diagnosis of diphtheria and typhoid fever have been more extensively taken advantage of than in preceding years. Of very great importance has been the establishment of a laboratory under the charge of a skilled bacteriologist. Systematic investigations have been undertaken and carried out in this laboratory which are not only a credit to the town but also a distinct contribution to medical knowledge. The regular work has been the examination of cultures from suspected cases of diphtheria; the examination of sputum for the early detection of cases of pulmonary tuberculosis, and the application of the Widal test in suspected typhoid fever. Some interesting observations on the presence of diphtheria bacilli in supposed healthy persons were made, which should be of value in estimating the danger of infection. Of this investigation the Report states:

> Cultures from 1369 *healthy* persons were examined. When a school child has been taken sick with diphtheria, the school inspectors have made cultures from those children sitting adjacent to the child, or from all the children in the same room. In this way, 1154 cultures have been made and 43 healthy children with the bacilli in their throats or noses were discovered. In 18 of these the bacilli were very few in number and present only on one day, as the cultures which were made on the day following and subsequently were negative. It is hard to explain these cases which appear to be so slightly and transiently infected. It seems probable that they are not a great source of danger.
>
> Of the 25 cases which were positive on more than one day, 4 were found by inoculation tests to be virulent, 12 were non-virulent, and in 9 the virulence was not tested. Very few of the 1154 school children had been much exposed. In many cases the cultures were made as a precautionary measure where the exposure was only suspected. This explains the occurrence of so few positive cases showing virulence.
>
> In marked contrast to the school cases were the results of examinations of cultures from the healthy members of families where one or more persons had diphtheria. Cultures from 218 persons were examined, among whom 39 (18 per cent) were positive. The bacilli from healthy persons who had been exposed were always found to be virulent when tested, and were therefore capable of transmitting the disease to others.
>
> With very few exceptions, none of these healthy persons with virulent bacilli developed symptoms of diphtheria; many of them doubtless would have done so had they not received a protective dose of antitoxin. The antitoxin prevents, for a few weeks at least, the development of serious symptoms in the individual so protected, and is, therefore, of great benefit, but it does not prevent the germs multiplying in the throat and nose, and so of being transmitted to others. As no symptoms develop after antitoxin is given which would enable a physician to recognize a

case as dangerous, it is only possible to discover the infected throats by means of cultures. Such undiscovered cases may go about spreading the disease, and may infect the rooms which have been disinfected by the Board on the removal of the case to the hospital.

This sort of work is worthy of emulation everywhere and it is in general gratifying to observe that really scientific methods are being more and more systematically introduced in Board of Health laboratories to the evident benefit of the communities in which they are located.

"AMERICAN MEDICINE," A NEW MEDICAL JOURNAL.

THE first number of a new weekly medical journal, advertised for several months, appeared April 6th, with the title "American Medicine." It adds another to the already overcrowded list of such journals, but its editor, Dr. George M. Gould, and its owners are no doubt inspired by the perfectly legitimate ambition of finding room at the top, an ambition which has led to the success of many far more venturesome efforts than this.

In form and general arrangement of contents the new journal is very similar to the *Philadelphia Medical Journal*, of which Dr. Gould was formerly the editor. Original articles are relegated to the latter part of each issue, with editorial comments and items of general medical interest at the beginning. A department of therapeutics has been introduced, and under the rather unnecessarily comprehensive heading, "The World's Latest Literature," is given an epitome of current medical writing as found in certain of the better known and not strictly technical journals. This latter method of disseminating knowledge was introduced into American weekly journalism by Dr. Gould, and is certainly to be regarded as of value, if well done. That it is often very poorly done is perhaps unavoidable, but none the less unfortunate.

The appearance of this first number is gratifying to a lover of good printing; its typographical errors are few in consideration of the fact that this is its first issue, and the material offered to readers is varied and nutritious. The promise of short articles, as made in the prospectus seems doubtful of fulfilment, however, when we note that five of the original papers are of the continued variety. There is considerable editorial comment on the need of independent journalism to which we, in general, most willingly subscribe. We confess, on the other hand, to a feeling of regret that the editor has seen fit to resort to the paralled column method of enforcing his ideas even in so small a matter as in giving advice to subscribers to medical journals. We had hoped that argument put in this form had its place only in political controversy.

A SO-CALLED VICTORY FOR CHRISTIAN SCIENCE.

UNDER the heading "Victory for Christian Science," a daily paper cites a case occurring in Milwaukee in which two Christian Scientists were convicted in a police court of practising medicine without a license. The case was appealed and the judge of the higher court is reported to have ruled that, inasmuch as there never had been any testimony that the defendants had pretended or attempted to use medicine, they could not be held liable, the question at issue being whether the defendants did or did not practise medicine. We can hardly believe that the ruling is correctly reported; if it is we are at a loss to conceive what is legally meant in Milwaukee by the phrase, "practice of medicine." Certainly no liberal-minded or well-informed person imagines nowadays that the practice of medicine means solely the employment of drugs. We should, on the contrary, suppose that the definition as ordinarily interpreted signifies merely the treatment of disease by any means physical or otherwise. A large part of medical treatment has no relation to the use of medicine a fact which the courts ought to know. We have no knowledge of the special case in which the above ruling was made, nor do we wish to express here an opinion as to the advisability of prosecution in such cases in general, but that any person should be freed of responsibility and exempt from processes of law relating to medical practice on the ground that he does not employ medicine in his treatment is a dodging of the real question at issue capable of most serious misinterpretation. If the courts are to maintain that a person may treat the sick without let or hindrance provided only he abstain from giving medicine of what possible significance is a medical practice act?

MEDICAL NOTES.

A PROPOSED ALLIANCE OF AMERICAN COUNTRIES TO COMBAT YELLOW FEVER.—At the recent meeting of the International Medical Association held in Havana the proposition was made to organize a committee of the various American countries to investigate the possibility of establishing a uniform system of quarantine regulations and systematic co-operation for removing the sources and suppressing the causes of yellow fever. A convention is to meet in Havana next February. The invitation to the United States to participate in this convention is now under consideration by Dr. Wyman of the marine hospital service.

YELLOW FEVER IN THE PHILIPPINES.—Dr. F. A. Meacham, president of the Board of Health at Manila, calls attention to a statement in our

issue of December 27, 1900, regarding the presence of yellow fever in the Philippine Islands. He writes: "There have been no cases of yellow fever in the Philippines during the year 1900, and from all obtainable information this disease has never gained an entrance to the Archipelago."

Plague in San Francisco. — Official reports show that a certain amount of plague is endemic in San Francisco. The cases have been comparatively few in number, but of a virulent character. The disease has been confined almost exclusively to the Chinese, but for several years has not increased to a degree to cause alarm.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 10, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 59, scarlatina 33, measles 89, typhoid fever 8.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending April 6th was 211, as against 276 the corresponding week last year, showing a decrease of 65 deaths, and making the death rate for the week 19.6. The deaths from consumption were 32, pneumonia 31, whooping cough 1, heart disease 19, bronchitis 7, marasmus 3. There were 11 deaths from violent causes. The number of children who died under one year was 30; under five years 52. Persons more than sixty years 44; deaths in public institutions 61.

Typhoid Fever in New Haven, Conn. — Within the last few days upwards of 150 cases of typhoid fever have developed in one of the better residence quarters of New Haven. An investigation by the Health Board is said to have shown the cause to be the pollution of a pond which furnishes the water supply for the western part of the city. Infected matter from 3 cases of the disease in the family of a farmer living near the pond was washed into it by the recent rains.

NEW YORK.

Vindication of North Brother Island Hospital. — Robert Martin, a merchant who was recently a smallpox patient in the hospital for contagious diseases on North Brother Island, having published in the newspapers sensational charges as to the existence of gross abuses in that institution, the commissioners of the Board of Health immediately invited representatives of the principal papers to make a visit to the island in company with officials of the department. Had the abuses described really existed there would have been no time to correct them, and the party of visitors came away entirely satisfied that the management of the hospital was efficient and that everything possible was being done for the welfare and comfort of the patients.

Semi-centennial of Dr. Abraham Jacobi's Graduation in Medicine. — On April 5th Dr. Abraham Jacobi celebrated the semi-centennial of his graduation in medicine at the New York Academy of Medicine, having been graduated from the University of Bonn in 1851. On this occasion Dr. Jacobi was himself the host, and entertained a number of the prominent physicians of the city. In a paper on some of his reminiscences he spoke particularly of the German textbooks of fifty years ago, a collection of which he has presented to the library of the academy.

Demonstration of a Mechanical Device to Facilitate Hearing. — Recently Mr. Miller Reese Hutchison gave before the Section on Otology of the Academy of Medicine a demonstration of his telephonic device for enabling the deaf (even deaf mutes) to hear, which excited much interest. He explained that while he did not claim anything curative for his invention, which was simply a mechanical contrivance to facilitate hearing, at the same time he had observed in a considerable number of cases more or less improvement.

Enforcing the Law Regarding Expectoration. — On April 1st the Board of Health began a rigorous crusade against persons expectorating on the floors of street cars and ferry boats. Members of the sanitary police force were sent out in all the boroughs, in citizen's clothes, to watch for offenders against the ordinance forbidding the practice, and a large number were arrested.

Enlargement of St. Mary's Free Hospital. — The trustees of St. Mary's Free Hospital for Children, on West 34th Street, have purchased two city lots on 35th Street, adjoining the buildings, and will erect on the property an addition to the hospital.

A Centenarian. — Louis Voilland, a native of France, who after coming to America was for some time in the service of Madame Jumel, the widow of Aaron Burr, died on April 4th at Mamaroneck, Westchester County, at the age of 103.

Bequest to a Hospital. — Among the charitable bequests of Mrs. Katharine D. Callahan, of New York, who died last month, is $5,000 to St. Francis Hospital, to be devoted to the establishment of the "Rigney-Callahan" ward.

Death after Removal of Stomach. — The patient whose stomach Dr. George R. Fowler removed at the German Hospital in Brooklyn died April 2nd, five days after the operation.

MALARIA IN RELATION TO ENGINEERING AND AGRICULTURE.

PROF. A. CELLI has contributed to the *Journal of the Sanitary Institute*, January 1901, page 617, an extremely valuable and interesting article upon the Relation of Malaria to Engineering and Agriculture, from which the following extracts are taken:

It is therefore now beyond question that a malarial human being, that is, one who has the specific parasites in his blood, is the first source of infection. The anopheles mosquito, which sucks that blood, is the other source of infection, and also the vehicle that carries the germ through the air, and the means of inoculation. It is further certain that these gnats live in humid places at various altitudes, in Italy from 0 to 1,300 metres. But for the local origin of an epidemic, besides a malarial human being and anopheles mosquitoes, there is required a suitable temperature (from 20° to 25° C.), that is, the opportune season, from which fact malaria in old times was also called "seasonal fever."

In order to live on the surface of the earth all gnats require water through the whole period of their aquatic existence, that is to say, in their larval and nymphal stages. As Tommasi-Crudeli had already shown, the soil may be of any nature and constitution, provided it has water on the surface; the water may also be contained in reservoirs outside the earth. Water is therefore the sole and true condition that is indispensable for the development of mosquitoes, and therefore of malaria, in every place where that disease is prevalent.

Briefly summing up the results of very numerous observations it may be stated as indubitable that:

(1) The larvæ of anopheles live in any water, clean or foul, clear or turbid, acid or alkaline, and ferruginous. They do not live in water (1) containing salt (salt marshes, sea water, and mixtures of that with fresh water in the proportion of two to one); (2) very strong sulphur waters; (3) water that is putrid from the putrefaction of animals or textile plants. They avoid water (*a*) in which there is any movement (currents, ripplings caused by even light winds such as sea breezes, mechanical disturbance as by the passage of boats); (*b*) without vegetation of aquatic plants, of which they prefer the filamentous species which do not occupy the whole free surface of the water where they rise to breathe.

(2) The aerial anopheles are little domestic animals which live in and around houses. It is on this account that malaria is so often epidemic, that is to say, a disease which is contracted for the most part in the interior of dwellings, or in their vicinity. They bite in the evening and at night, and from olden times therefore these have been looked upon as the most dangerous hours for the contraction of fevers. The insects are carried to a distance, not only by the wind, which they dread because they are beaten down by it, but passively, that is to say, on man, on his belongings (grass, hay, wood, beasts), and on his means of locomotion (carts, coaches, railway carriages, etc.).

From these facts, which are now thoroughly established, are deducible several corollaries useful in practice for engineers and agriculturists.

(1) *Corollaries for hydraulic engineers.* — In the first place, certain prejudices that have for a long time held sway in the schools have been definitively removed. For instance, it can no longer be maintained that a puddle or lake is improved by the water level being kept constant. On the contrary, if the waters are still and — as happens in the neighborhood of the edges — there grows an aquatic vegetation, there the larvæ of the anopheles gnats mostly make their nests.

Another prejudice, already combated by Tommasi-Crudeli and now definitively buried, is that putrid waters and the emanations therefrom are causes of malarial fevers, whereas on the contrary, it has been seen that the specific gnats do not live in stinking waters.

Another prejudice which is already crumbling away, although the Paris Academy of Medicine not long ago attempted to revive it, is that waters which are brackish owing to a mixture of fresh water with sea water, and salt marshes along the sea-coast are very unwholesome.

Having thus briefly seen which are the gnat-breeding, and therefore the malaria-breeding waters, I pass on to indicate the new criteria with which engineers who have to carry out hydraulic improvements designed to free districts from malaria should be acquainted.

It is known that these improvements can be secured by means of, (*a*) Natural drying by large canals with a high-level water course; (*b*) mechanical drying by means of pumping engines; (*c*) earth embankments; (*d*) drainage. This last method may be sufficient of itself or may be complementary to those previously mentioned.

(2) *Corollaries for sanitary engineers.* — The house in malarial regions may, as has been said, be the point of greatest danger from fevers, while on the other hand, if properly built and equipped, it may be the safest place. Formerly, in every malarial district, it used to be required (and as far as possible it ought still to be required) that the house should be built in the highest and dryest situation possible; but this is not sufficient, for the gnats, directly or passively, will get up to it.

Other structural conditions are today more necessary, whenever a house has to be built in a malarial place. Above all there should never be a dark or badly lighted part in the house. If there is such a part, as for example, in the cellars, under the stairs, in the latrines, gnats will certainly hide there.

The walls of the rooms must be white, so that every gnat that rests on them may at once be seen. From the bedrooms it will be necessary to remove pictures, curtains, and such articles of furniture as shelter gnats. If by chance one is heard in the night, a powder should be burnt which at any rate will stupefy it, so that afterwards in the morning it can be looked for and killed. Care should be taken that there are no holes in the floor, or if there be any, that they should be closed.

It is advisable to avoid having trees about the houses, as in the daytime the mosquitoes hide there, which in the evening try to make their way into the houses, especially into rooms where there is a light burning.

Finally, any kind of habitation in a malarious place, even to temporary sheds that can be taken down and straw huts, should be protected against the invasion of mosquitoes. The walls should be of netting, or be made somehow impermeable to those insects, and in every case a cage with an outer and an inner door of metallic netting should protect the entrance.

With such mechanical protection, last year I, for the first time, made it possible for the families of railway servants to pass the whole summer and autumn in the most malarial spots of the Campagna without contracting the fever; and there is no longer any doubt that it is possible to keep a house free from mosquitoes, and therefore from malaria, in the regions most infected by that epidemic disease.

(3) *Corollaries for agriculturists.* — It must first of all be understood that any turning of the soil cannot by itself be a cause of malaria, as was believed when it was supposed that the germs of this infection lived in the ground. Thus the temporary irrigations of dry cultures, as maize, meadows, fields, pot-herbs, oranges, lemons, etc., cannot be a cause of malaria, provided the water reaches the soil in no greater quantity than it does in a shower of rain, and the canals by which it flows in or out are not of such a character as to allow it to become stagnant.

On the other hand, marsh lands or irriguous fields which are kept in a state of prolonged submersion may be a cause of malaria, not by reason of the water which is poured over the fields, and during the fever season is not left there, but by reason of the water which stagnates in the canals round the square patches of meadow.

My own experiments and those of my fellow-workers in various parts of Italy, have shown that ricefields, whether the water in them be stagnant, running, or intermittent, are always a favorite nidus of the anopheles larvæ.

Does the culture of shrubs, and in general of trees, favor the propagation of malaria, or does it not? It can no longer be maintained that, at any rate among us, there exist culicifuge trees, and that of this nature, as the Paris Academy of Medicine persists in believing, are the pine and the eucalyptus. These and our other trees are, on the contrary, shelters for the insects of the air, and therefore in the neighborhood of houses, as in our railway cottages, they rather entail a danger of malaria. On the other hand, some herbaceous plants, chiefly the closed flowers of the chrysanthemums of Dalmatia and Montenegro, from which are prepared the so-called insecticide powders, are effectual in killing the larvæ in water and the mosquitoes in the air. If it were possible to cultivate these plants on a large scale, it might be possible also to contrive that the malarial place itself should produce as much as would suffice to free it from the mosquitoes by which it is infected.

Lastly, *intensive cultivation* is notoriously that which best reconciles hygiene with rural economy. And how this is so we are now in a position to explain. Dry soil, temporary irrigations, strict conservancy of canals, even the foul liquids of natural manures, are so many conditions unfavorable to the life of the larvæ of the fever-breeding mosquitoes. And thus it is understood how, wherever it has been possible to secure all this, intensive cultivation has brought economical prosperity and health to wretched and inhospitable waste lands.

(4) *Brief notions of prophylaxis for laborers in malarious places.* — It is altogether to the interests of engineers and agriculturists to safeguard the health of him who works for them much more than he does for himself. It is well, therefore, that they should know how they can and ought to do this. It is obviously necessary that, in every primary and recurrent case of malarial fever, treatment by means of quinine should be prompt, as complete as possible, and therefore prolonged and gratuitous.

For this purpose he also advises protection of laborer's dwellings by screens, protection of the uncovered parts of the body, and shortening or abolition of night and evening work. He also recommends the administration of euchirim to produce immunity.

"RUDOLF VIRCHOW FUND."

TO THE AMERICAN MEDICAL PROFESSION: — On October 13, 1901, Rudolf Virchow will be eighty years old. When he completed his seventieth year a fund was started in his honor to enable the great master to facilitate scientific research by establishing scholarships, and by encouraging special medical and biological studies. Contributions to that "Rudolf Virchow Fund" were furnished by those in all countries interested in progressive medicine, as a homage to the man whose name is always certain to arouse admiration and enthusiasm.

In Berlin a large committee, containing among others the names of A. Bastian, V. Coler, A. Eulenburg, B. Frænkel, O. Israel, Fr. Kœnig, C. Posner and W. Waldeyer, has been formed to call for contributions which are to be added to the original "Rudolf Virchow Fund" so as to increase its efficiency. The committee expresses the opinion that in no better way, and in none more agreeable to the great leader of modern medicine, can his eightieth birthday be celebrated, and ask for the sympathy and co-operation of all those engaged in the study and practice of scientific medicine all over the globe.

The undersigned have formed a sub-committee for the purpose of making the American profession acquainted with the intentions of the Berlin Committee, and urge their colleagues to participate in honoring the very man who has done more, these fifty years, than any other to make medicine a science, and international.

Subscriptions should be sent to their secretary, who will receipt therefor.

CHARLES A. L. REED,
President of the American Medical Association.

HENRY P. BOWDITCH,
President of the Congress of American Physicians and Surgeons.

WILLIAM H. WELCH,
Johns Hopkins University.

ROBERT F. WEIR,
President of the New York Academy of Medicine.

A. JACOBI, 110 West 34th St., New York,
Secretary.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 30, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1,409	422	25.49	20.23	2.70	.78	3.34
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	532	148	20.11	.94	1.50	.75	2.63
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	199	46	23.09	15.06	—	.50	1.50
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	101	39	18.81	19.80	—	.39	—
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	62	20	14.49	20.93	—	4.83	—
Boston	560,892	244	66	26.20	21.73	3.28	.82	5.33
Worcester	118,421	—	—	—	—	—	—	—
Fall River	104,863	31	10	25.76	16.10	—	6.44	—
Lowell	94,969	40	16	7.50	25.00	—	—	—
Cambridge	91,886	29	10	20.70	10.35	—	—	6.90
Lynn	68,513	14	5	7.14	14.28	—	—	7.14
Lawrence	62,559	24	11	4.17	25.02	—	—	—
New Bedford	62,442	33	19	9.09	24.24	—	—	—
Springfield	62,059	22	3	18.20	13.65	—	—	—
Somerville	61,643	17	5	23.52	23.52	5.88	—	—
Holyoke	45,712	20	5	10.00	25.00	—	—	5.00
Brockton	40,063	16	4	31.25	18.75	6.25	—	—
Haverhill	37,175	7	2	28.60	—	—	—	—
Salem	35,956	8	1	12.50	37.50	—	—	—
Chelsea	34,072	13	2	—	—	—	—	—
Malden	33,664	13	2	15.38	15.38	—	—	7.69
Newton	33,587	5	—	—	20.00	—	—	—
Fitchburg	31,531	11	2	9.09	—	—	—	—
Taunton	31,036	13	1	30.76	23.07	—	—	7.69
Gloucester	26,121	9	3	—	—	—	—	—
Everett	24,336	8	3	12.50	25.00	—	—	—
North Adams	24,200	3	2	—	33.33	—	—	—
Quincy	23,899	6	1	33.33	—	—	—	—
Waltham	23,481	9	2	33.33	22.22	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	10	3	20.00	20.00	—	10.00	—
Medford	18,244	4	1	—	75.00	—	—	—
Newburyport	14,478	3	—	33. 33	—	—	33.33	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,939; under five years of age 858; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 664, acute lung diseases 485, consumption 376, diphtheria and croup

83, diarrheal diseases 53, scarlet fever 56, influenza 19, typhoid fever 29, whooping cough 11, measles, 13, cerebro-spinal meningitis 3, smallpox, 11.

From whooping cough, New York, 2, Philadelphia, 3, Baltimore, 1, Pittsburg, 3, Boston, 2, Holyoke, 1. From cerebro-spinal meningitis Boston, Everett and Clinton, 1 each. From scarlet fever, New York, 38, Philadelphia, 8, Boston, 8, Somerville and Brockton, 1 each. From typhoid fever, New York, 11, Philadelphia, 4, Baltimore, 1, Pittsburg, 4, Providence, 3, Boston, and Fall River, 2 each, Chicopee and Newburyport 1 each. From measles, New York, 8, Pittsburg, 2, Boston 2, Cambridge, 1. From smallpox, New York, 10 Pittsburg, 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending March 16th, the death rate was 18.9. Deaths reported, 4,280; acute diseases of the respiratory organs (London), 394, whooping cough 112, diphtheria 66, measles 105, fever, 23, scarlet fever, 30.

The death rates ranged from 13.8, in West Ham, to 28.2, in Liverpool; Birkenhead, 14.9, Birmingham, 22.2, Blackburn, 18.0, Bolton, 14.7, Bradford, 14.9, Brighton, 14.6, Bristol, 21.7, Burnley, 14.3, Cardiff, 18.5, Croydon, 15.1, Derby, 14.7, Gateshead, 19.0, Halifax, 21.5, Huddersfield, 17.3, Hull, 18.9, Leeds, 19.8, Leicester, 15.1, London, 17.6, Manchester, 19.9, Newcastle-on-Tyne, 18.2, Norwich, 18.4, Nottingham, 18.4, Oldham, 24.8, Plymouth, 26.6, Portsmouth, 20.1, Preston, 21.7, Salford, 21.5, Sheffield, 20.7, Sunderland, 29.0, Swansea, 14.6, Wolverhampton, 15.0.

METEOROLOGICAL RECORD.

For the week ending March 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...24	30.12	40	44	37	60	94	77	S.W.	E.	5	2	O.	R.	.06
M..25	30.13	41	44	38	78	90	84	N.E.	N.E.	6	8	O.	†O.	.06
T...26	29.71	38	41	36	—	98	99	N.E.	N.E.	18	7	R.	R.	.56
W..27	29.37	46	54	37	96	66	81	N.W.	W.	7	15	O.	F.	.74
T...28	29.43	35	42	28	68	69	68	W.	N.W.	20	22	O.	O.	.0
F...29	29.65	30	34	26	49	59	54	N.W.	N.W.	15	14	O.	F.	.06
S...30	29.69	35	43	27	50	50	50	N.W.	N.W.	22	18	C.	C.	.9
☞	29.73		43	33			73							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

SOCIETY NOTICE.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — A regular meeting will be held at 3 Park Street on Thursday, April 18th, at 7.30 P.M.

Papers: Dr. N. Louise Lawrence, "Tonsillitis"; Dr. Agnes C. Vietor, "The Pathology of Tonsillitis, Illustrated."

Discussion: Dr. Elizabeth C. Keller, "Tonsillitis from the Standpoint of the Surgeon." Dr. Alice G. Bryant, "Tonsillitis from the Standpoint of the Specialist."

AGNES C. VIETOR, M.D., Secretary,
Trinity Court.

LECTURES AT NEW YORK SCHOOL OF CLINICAL MEDICINE. — The New York School of Clinical Medicine offers a series of lectures open to the profession weekly from April 5th to June 7th on varied topics.

THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. — The American Gastro-Enterological Association will hold its annual meeting May 1, 1901, at Washington, D. C.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held in Sprague Hall, Medical Library Building, Fenway, on Monday, April 15, 1901, at 8.15 P.M.

Papers: Dr. Robert T. Edes, "Observations on Heart Disease"; Dr. Edward O. Otis, "Health Resorts."

ARTHUR K. STONE, M.D., Secretary,
657 Boylston Street.

AMERICAN ACADEMY OF MEDICINE. — The Twenty-sixth Annual Meeting of the American Academy of Medicine will be held at St. Paul, Minn., June 1, 2 and 3, 1901.

SUFFOLK DISTRICT MEDICAL SOCIETY. — A regular meeting of the Section for Clinical Medicine, Pathology and Hygiene will be held in Sprague Hall, Boston Medical Library Building, No. 8 The Fenway, Wednesday, April 17th, at 8 P.M. DR. S. A. KNOPF of New York will read a paper upon "Municipal Care for Consumptives." Discussion by Dr. J. H. Prior of Buffalo, Drs. F. I. Knight, E. O. Otis and V. Y. Bowditch.

H. F. HEWES, Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Nursing Ethics: For Hospital and Private Use. By Isabel Hampton Robb. Cleveland: J. B. Savage. 1901.

A Text-book of Diseases of the Nose and Throat. By D. Braden Kyle, M.D. Illustrated. Second edition. Philadelphia: W. B. Saunders & Co. 1901.

Repairing the Abdominal Wall in Ventral Hernia: A New Operation. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1900.

An Index of Symptoms. As a clew to Diagnosis. By Ralph Winnington Leftwich, M.D. Second edition. New York: William Wood & Company. 1901.

International Medical Annual. A Year-Book of Treatment and Practitioner's Index. Nineteenth Year. New York and Chicago: E. B. Treat & Co. 1901.

The Medical News Pocket Formulary for 1901. By E. Quin Thornton, M.D. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1901.

Second Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the Year Ending September 30, 1900. Boston: Wright & Potter Printing Co. 1901.

The Treatment of Fractures. By Charles Locke Scudder, M.D. Assisted by Frederic J. Cotton, M.D. Second edition, revised. Illustrated. Philadelphia: W. B. Saunders & Co. 1901.

A Compend of Human Physiology. Especially Adapted for the Use of Medical Students. By Albert P. Brubaker, A.M., M.D. Tenth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Human Placention. An Account of the Changes in the Uterine Mucosa, and in the Attached Fetal Structures, During Pregnancy. By Dr. J. Clarence Webster, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E. Illustrated. Chicago: W. T. Keen & Co. 1901.

Retinoscopy (or Shadow Test) in the Determination of Refraction at One Meter Distance, with the Plane Mirror. By James Thorrington, A.M., M.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Pulmonary Consumption, Pneumonia and Allied Diseases of the Lungs. Their Etiology, Pathology and Treatment, with a Chapter on Physical Diagnosis. By Thomas J. Mays, A.M., M.D. Illustrated. New York: E. B. Treat & Company. 1901.

Introduction to the Differential Diagnosis of the Separate Forms of Gallstone Disease. Based Upon His Own Experience Gained in 433 Laparotomies for Gallstones. By Professor Hans Kehr. Halberstadt. Authorized Translation by William Wotkyns Seymour, A.B Yale, M.D. Harvard. Introduction by Professor Kehr. Philadelphia: P. Blakiston's Son & Co. 1901.

Transactions of the American Dermatological Association, at its Twenty-fourth Annual Meeting held in Washington, D. C., May 1, 2 and 3, 1900. In Connection with the Fifth Triennial Session of the Congress of American Physicians and Surgeons. Official Report of Proceedings by Frank Hugh Montgomery, M.D., Secretary. Chicago: P. F. Pettibone & Co., Printers. 1901.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. III. Anesthesia and Surgical Technique. Fractures and Dislocations, and Minor Surgery. Surgery of the Lungs and Pleura and of the Peritoneal Cavity, the Rectum, and Anus. Diseases of the Genito-Urinary Apparatus and of Parturition and of the Puerperium. Diseases of the Eye and Ear and of the Upper Respiratory Tract. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Original Articles.

THE OPINION EVIDENCE OF MEDICAL EXPERTS.[1]

BY JOHN D. MCLAUGHLIN, BOSTON,
Assistant District Attorney.

THERE are few branches of the law, particularly that of evidence, which have more than a general interest for those not of that profession. The subject, however, of expert testimony, and especially that of medical experts, is singular, in that apart from its own intrinsic importance, it excites equal concern in two great professions, the medical and legal. The interests of the physician and the lawyer (as well as of the layman whose property or liberty, when a party, may be intimately involved, or who, as a juryman, may be called to sit in judgment) here converge in a common centre. The discussion which has waged for years, and while present conditions obtain, will wage long hence, and the numerous proposals for reform in the reception of such testimony has been about equally participated in by these several interests. Each from time to time, through the channel of medical journal, legal periodical or the newspaper, is contributing some thought or suggestion to the subject; and I cannot but believe that your society, whose end is the advancement of the science of forensic medicine, regards it, however trite, as one of surpassing importance.

Some months ago, I had the honor to read, before the medical society of a neighboring county, a paper in which I discussed the position of the medical expert as lawyers see him upon the stand today, and said, in passing that the many proposed schemes of reform seemed to me speculative and impractical. In so far, at least, as I may have seemed by that remark to endorse the method which now prevails in England and America, I beg leave to disclaim that opinion.

When the physician testifies as merely an ordinary witness to facts which have come within his observation, he excites no greater interest or attention than that which might attend the testimony of an intelligent witness from any other vocation. His effectiveness, persuasiveness, and claims to belief depend upon the same conditions as do those of any witness. But when testifying to his opinion, based either on facts which he has himself observed, on admitted facts, or upon some hypothesis, expressing the judgment of a scientific man, ready to submit it to the opinion and criticism of the members of his own profession, to the cross-examination of counsel, publicly and to the world, then he frequently evokes an interest which rarely surrounds a witness under any other circumstances. There is, indeed, no phase of evidence which has attracted more attention, which has been the object of more criticism (frequently from bench and bar) or more the subject of proposed reforms than the opinion testimony of medical witnesses as uttered on the witness stand.

[1] Read before the Massachusetts Medico-Legal Society, February 6, 1901.

Of the scope and extent of such criticism, at least on the part of those who administer the law, we may derive a clearer and more concrete conception if I cite from a few of its most authoritative sources. I will content myself with quoting from a judgment of the Supreme Court of the United States, from the charge to the jury in a capital case of a former chief justice of this Commonwealth, and from the charge in a similar case of one of England's great judges.

Said Mr. Justice Grier in the case of Winans *vs.* N. Y. & Erie R. R. Co., 21 How., 88, 101: "Experience has shown that opposite opinions of persons professing to be experts may be obtained to any amount; and it often occurs that not only many days but even weeks are consumed in cross-examinations, to test the skill or knowledge of such witnesses and the correctness of their opinions, wasting the time and wearying the patience of both court and jury, and perplexing instead of elucidating, the questions involved in the issue."

Said Chief Justice Chapman, at the trial of Andrews in this Commonwealth: "I think the opinions of experts are not so highly regarded now as they formerly were, for while they often afford great aid in the determination of facts, it often happens that experts can be found to testify to any theory however absurd." (Trial of Samuel M. Andrews, page 256.)

And in Palmer's case, Lord Campbell, in summing up to the jury, said: "With regard to the medical witnesses called on the part of the prisoner, I must observe, that although there were among them gentlemen of high honor, consummate integrity and profound scientific knowledge, who came here with a sincere wish to speak the truth, there were also gentlemen whose object was to procure an acquittal of the prisoner. It is, in my opinion, indispensable to the administration of justice that a witness should not be turned into an advocate, nor an advocate into a witness. You must say, gentlemen, whether some of those who were called for the prisoner belonged to the category I have described — that of a witness becoming an advocate." (Palmer's case reviewed in 1, Law Magazine and Review, page 332.)

Such opinions, expressed under such circumstances, frequently reiterated by lesser tribunals, provoke the inquiry, which perhaps may be difficult to satisfactorily answer, Where does the fault lie?

I take it, of course, that all comment of the kind which I have quoted, is directed rather to the method of receiving such evidence than to the nature of the evidence itself, for the severest critic would not hold that even under the prevailing law, and assuming that it cannot be improved upon, that opinion testimony, as such, should not be followed or relied upon.

If the physician were to be confined in his testimony to the bare narrative of the facts which he saw or observed, one at least of the safeguards of the community would be destroyed. The phenomena which result from the work of the murderer, the poisoner or the abortionist, as

revealed in the human cadaver, are an enigma to the layman. Though accurately described, though no detail be omitted they mean but little to his mind. To the physician, the surgeon or the toxicologist they may demonstrate with entire certainty that death was not natural, that it was caused by violence or malpractice, or by the administration of poison; or with equal certainty, on the other hand, where guilt is suspected, suspicion to be unfounded. Such certainty, however, can find expression in our courts of law in but one way, viz.: by what is known as expert or opinion testimony.

It is useless, however, to attempt to palliate the contradictions, inconsistencies, exaggerated and absurd theories which under present conditions so frequently characterize the trial of the most important issues. It is seldom that a capital case is tried, which does not result in revelations of a nature which cannot but annoy and mortify the medical profession.

Few theories, however fantastic, need go unchampioned; the question of insanity has become a byword, and it is the experience of lawyers that to testify as an expert is becoming more and more repugnant to those physicians whose evidence would be of the most value. The annals of criminal jurisprudence of the century just past furnish too abundant proof of how strikingly medical experts have been at variance in particular cases; and of what diverse and inconsistent views have been entertained upon a given state of facts, by members of the same profession, and of equal eminence, educated, perhaps, in the same schools, contemporaries in practice.

The case of William Palmer, a surgeon, for example, who was tried in London for the murder by poison of one John Parsons Cook, is a most conspicuous instance of contradictions amongst experts. Four different theories were advanced by as many physicians as to the cause of death, and the analysts called on one side and the other were wholly at variance as to the phenomena which attend the administration of strychnia.

In the case of Dr. Smethurst, tried a few years later in London, for poisoning a woman with whom he had contracted a sham marriage, the conflict of evidence, medical and analytical, as to whether the symptoms of the post-mortem appearances were ambiguous and could be referred either to natural causes or to poison, was such, that though the prisoner was convicted, the public became so agitated, and the controversy carried on by letter and petition reached such a stage, that the home secretary, who investigated the matter remarked, in stating his reasons for recommending a pardon, "that the necessity for it did not arise from any defect in the constitution or proceedings of our criminal tribunals, but from the imperfection of medical science, and from fallibility of judgment in an obscure malady, even of skilful and experienced practitioners."

And we cannot but call to mind the case of Mrs. Maybrick, tried in 1889, the result of which has been so loudly denounced as a judicial error by some who are, but by so many who are not, familiar with the evidence. The direct conflict which arose at that trial between some of the ablest medical men of Great Britain as to whether Maybrick died of arsenical poisoning, or a natural death from gastro-enteritis, is quite fresh in our minds. Doubt existing, notwithstanding the verdict, the home secretary commuted the sentence, stating that "although the evidence leads clearly to a conclusion that the prisoner administered and attempted to administer arsenic to her husband with intent to murder, yet it does not wholly exclude a reasonable doubt whether his death was in fact caused by the administration of arsenic." And although the report of the trial discloses moral evidence against her of tremendous force, yet, I take it, the question of her guilt or innocence will continue, long hence, to agitate and distract.

But who will say that the conditions of which these cases are but illustrations are not largely owing rather to the defective method of the law, than to the imperfection of science, or that we are confronted with a state of things which it is impossible to ameliorate? Surely the fault cannot be laid at the door of science. Wherever the experts in the cases above referred to were in contradiction, one of them was right and the other wrong. The failure to find traces of strychnia in a dead body is either entirely consistent with, or entirely inconsistent with, its having been administered. The analyst in Palmer's case who maintained one of these propositions was telling the absolute truth and the other was testifying to what was entirely false. Science had a faithful spokesman in one, and a false spokesman in the other. Truth was struggling to express itself through one; error through the other. It would seem, then, that it is at least the duty of the law to establish as many barriers to the progress and triumph of this species of error as is humanly possible. Under the Common Law of England, in vogue in Massachusetts and most of the American States, what are those safeguards? Whoever styles himself as a physician and who has some aquaintance with medicine, or who has had some practice, be it much or little, is regarded as competent to express his opinion as an expert, whatever may be his interest or bias.

To give an opinion as a medical expert, the law does not require that the witness should belong to any particular school of medicine. "The law has nothing to do with the merits of particular systems." (Corsi *vs.* Maretzek, 4, E. D. Smith, 1.) If the witness is a medical man and has the requisite knowledge, he may have acquired this knowledge either by study alone, although in practice he has observed no such case: State *vs.* Wood, 53 N. H., 484; Finnegan *vs.* Fall River Gas Works Co., 159 Mass., 311; or by practice alone: Mason *vs.* Fuller, 45 Vt., 29. He need not have made the subject a specialty in his practice. Nor to give an opinion as a medical expert, need the physician (except in Wisconsin where it is required by statute) be a graduate of

a medical college, or even duly licensed: New Orleans R. Co. *vs.* Albertson, 38 Miss., 247. Nor need he be at the time in practice: Roberts *vs.* Johnson, 58 N. Y., 613; Tulles *vs.* Kidd, 12 Ala., 648; Everett *vs.* State, 62 Ga., 65. Nor need he have met a similar case in the course of his reading or practice: State *vs.* Clark, 12, Ired., 151. And finally, in some jurisdictions, it is not even essential that he should be a physician or should have studied for one, provided he has acquired the special knowledge required of the medical expert: Re Toomes, 54 Cal., 515; Dole *vs.* Johnson, 50 N. H., 452.

Insanity being deemed a disease, it is the general custom of our American judges to accept all educated and practising physicians as experts, whether they have given special attention to the disease of insanity or not. ("Bishop's Criminal Law," Section 544.) And it would even seem, from a dictum of one of our courts, that, in one State, at least, nurses, accustomed to attend upon the sick, are considered experts in respect to the mental capacity of sick persons. (Fairchild *vs.* Bascomb, 35 Vt., 298.)

In an Alabama case (an action for damages for false warranty in the sale of a female slave, a species of suit which was not uncommon in slavery times) a witness was permitted to give an opinion as to the soundness of the slave, whose qualifications were that previous to 1831 (the suit was brought in 1847) he had attended a course of medical lectures, had obtained a license from the Board of Physicians of the State to practise physic, and practised as a physician for one year when he abandoned medicine for the law, and for the period of sixteen years had been and still was following that profession, the witness stating that he had continued to read medical books, had kept up with the improvements of the science, and felt competent to express medical opinions upon the diseases of women. It was stated by the court in its judgment "that the clinical practice is doubtless a most efficient mode of acquiring such knowledge, by enabling the practitioner from his own observation, to verify the assertions or theories of others, or to correct errors into which they may have fallen; and it may be, that medical opinions, not brought to this test are not worthy of much reliance as the basis of the verdict of a jury. But, if one asserts an ability to give correct opinions, upon any art or science from any acquaintance with the subject, acquired by observation and study, we cannot perceive on what ground he can be rejected because he has not been in the actual practice of his profession. This circumstance may deprive his testimony of much weight with the jury, but is no ground for excluding it."

In a late case which arose in Illinois, a physician who had practised thirty-four years, a graduate of a Chicago medical college, who, so far as appeared, had never in his practice witnessed a case of arsenical poisoning, was permitted to express his opinion that the deceased, under the circumstances shown, had died of arsenical poison. (Siebert *vs.* The People, 143, Ill., 571.)

These cases are fairly representative of the general trend of the decisions of the courts in this country upon the degree of qualification required of the medical expert. The question arises, then, whether the law has not lost sight of his true status; whether, permitting a party to call whomsoever he may find, having some general knowledge of medicine and willing to support a favorable theory, is not a departure from the true principles which underlie the admission of such testimony. There can be no mystery as to the real purpose for which experts are called. "What is their function?" says Professor Thayer in his "Treatise on Evidence." "It is just this, of judging facts and interpreting them. They are called in because, being men of skill, they can interpret phenomena which other men cannot, or cannot safely interpret. They 'judge' the phenomena, the appearances or facts which are presented to them and testify to that which in truth these signify or really are; they estimate qualities and values. We say that they testify to opinion. In truth they are 'judging' something and testifying to their conclusion upon a matter of fact. For this reason, in Germany, experts are called *judices facti*—*judices* as opposed to ordinary witnesses, *judices facti* because they do not judge as to the law, but their judgment or opinion only gives as its result a fact." In this connection, it is interesting to note that when opinions were first admitted in the English courts as testimony (those which were offered earliest appeared to have been those of medical witnesses) they were received for the purpose of enlightening the court, and if they reached the jury at all did so through the medium of the court's charge.

In an appeal of mayhem tried in 1353, the justices having failed to determine from their own inspection whether a wound was mayhem, ordered skilled surgeons from London to inform the king and his court on this point.

An ejectment case tried in 1619 involved the question of the legitimacy of a posthumous child, and the court received the testimony of two doctors of physic in regard to the period of gestation, the record of the case reciting: "So the court delivered to the jury that the said Elizabeth, who was born 40 weeks and more after the death of the said Edmund Andrews, might well be the daughter of the said Edmund."

Sometimes the assistance of experts was obtained by the court without an open examination.

In 1703, Lord Holt, upon a question as to the negotiability of a promissory note, took occasion "To speak with two of the most famous merchants in London" as to their customs in regard to the endorsement of such paper. In an earlier case, at a trial for witchcraft in 1665, Dr. Thomas Browne, "a person of great knowledge," after viewing the accused was desired to give his opinion as to what he conceived of him, and he was clearly of opinion that the person was bewitched. (Trial of Witches, 6 How. St., Trans., 687, 697.[2])

[2] For the early history of expert testimony under the English law see American and English Encyclopedia of Law. Second edition, vol. xii, p. 49.

It is difficult to perceive how an expert's position in respect to facts differs from that of a judge in respect to the law. The latter, upon all the facts, expresses his judgment as to the law in relation thereto; the former, upon some group of facts, expresses his judgment as to their significance and meaning so that the judge or jury, or whatever tribunal finally passes upon them may have a full understanding. In our law judges there are two requisites which every one is agreed are pre-eminent: learning and disinterestedness, and the faintest trace of prejudice, bias or partisanship disqualifies them. Neither little learning nor much bias, under our practice, disqualifies the expert.

We are zealous for learning and impartiality in our judges of law; why should we not be zealous for learning and impartiality in our judges of fact?

A mistake of law can always be cured by the revision of some appellate tribunal; a mistake in the opinion of the expert is often difficult to detect, and generally impossible to revise. The true status of the expert is entirely appreciated in those countries which inherited the Roman Law. In France and Germany, Italy and Austria, he is treated as a *judex facti*, a theory, which in Germany especially, is carried to its logical extreme. Whenever the man of science is there called on to express his judgment he is treated, not as an ordinary witness but as an assistant to the court, and accordingly is appointed by the court. The latter has the right to call experts at any stage of the case and of its own volition. It determines the number and exercises the selection of them. In but few cases the free action of the court in appointing experts is limited, where, for example, the law provides that in cases involving patents or copyrights, certain persons, *ex officio*, shall act as experts; and in civil cases the court is bound by the choice of both parties.

When the expert testifies he cannot be attacked like an ordinary witness; his veracity cannot be impeached because he is regarded as a part of the court and must be treated with like respect. The mode of questioning and the scope which the opinion may take are entirely discretionary with the judge and, in civil cases, at least, if the experts agree, the parties must accept their opinion as true, though not necessarily binding on the judge.

In America, the compulsory attendance of expert witnesses is of doubtful right and never exercised; in Germany and Austria whoever practices any profession or trade, or is authorized to do so, is obliged to act as an expert, when required, and the only reasons which will exempt him are those which would exempt from testifying as an ordinary witness. In Austria he swears to carefully follow the object of investigation, to truly and carefully state all his observations and findings, and his opinion according to his best knowledge, and upon his conscience, and according to the rules of his science and art. In Germany, he swears that he will give the opinion demanded of him impartially and upon his best knowledge, and upon his conscience.

The reasons assigned by German writers for so markedly differentiating the casual or ordinary witness from the expert, are principally, that the former is only a witness by chance while the latter is selected because of his standing and should not be subject to like criticism or attack; the ordinary witness is not the subject of choice and cannot be dispensed with; the expert testifies only through the choice or by the permission of the court; the casual witness at the time of the occurrence in question is frequently not impressed with the fact that he is to be called upon as a witness; whereas the expert makes his observations with that in view. The ordinary witness seldom testifies without bias for whatever we live through becomes a part of us and is affected more or less by our feelings and habits of thought and one's personality is apt to permeate his testimony; in the expert, because of his scientific training, the personal element is more likely to be eliminated. In fine, the conclusions of the casual witness are based upon his personal impressions while those of the expert rest upon scientific facts and laws. (Holtzendorff's Encyclopedia of Law, Vol. III, part 2, page 512.)

In criminal trials in Germany the medical witnesses first called to testify are those whom the State has assigned to the judicial courts after previously ascertaining their knowledge in this department. The chief of the staff of professional experts is the district or town physician the statutory regulations requiring him to be scientifically educated, properly licensed and skilled in all the three branches of medical science, medicine, surgery and obstetrics; while there is also an organized series of courts of professional experts to whose judgment the opinion of the medical men first employed may be referred. The law, however, does not exclude private physicians, and they are frequently called to testify along with the official physician and sometimes to his exclusion. (Casper's Forensic Medicine, Vol. III, page 178.)

It may not be uninteresting here to epitomize by a quotation from Casper the German practice in respect to the written reports of official experts, and its provisions for their revision: "A copy of all the medico-legal transactions of all the medical jurists in Prussia, both protocols and reports, without exception, is sent by each respective local magistracy to the provincial government, and through it, in quarterly budgets, to the Royal Medical College of the province, for its revision. The same procedure is followed in regard to all inquiries regarding lunacy or idiocy in civil law. This board, on its part, transmits their transactions, along with its remarks upon each, to the ministry appointed, in which both transactions and revisals are submitted to a super-revisal by its scientific commission, and the result is communicated both to the revising medical college and also to the medical jurists concerned, affording to the latter instruction or recognition and encouragement.

"Here we have," says Casper, "no doubt, a cumbrous official apparatus set in motion, but this arrangement is indubitably successful in its operation, inasmuch, as not only does it maintain the central courts constantly acquainted with the doings of their medical jurists, but also indubitably has its share in the elevation of the practice of legal medicine in Prussia, to a perfection hitherto, attained in no other country, a fact which must be acknowledged, and which has quite recently been recognized by a most competent authority."

In Sections 173–177 of the Code of Criminal Procedure, which we have already quoted, the cases are described in which the reference of a medico-legal report to the superior courts shall take place. The rule, and the practice in most cases, is for this report to be sent, along with the other documentary evidence, first, to the medical college of the province, and should the opinion of this board be from any cause disputed, they are then sent to the Royal Scientific Commission for scientific affairs, to obtain its superarbitrium. This is, as in the medical colleges, drawn up by two referees, who work each for himself; both of their opinions are then brought before a meeting of the commission, discussed, and that one which is approved of by a majority of the commission is accepted, signed and issued. A precisely similar sequence of professional courts is found in most of the German states. In some of the smaller ones, which possess no medical boards, the opinions of the medical jurists are sent, along with the documentary evidence, to some faculty, either at home or abroad.

One result of this legislation in Germany, which may seem to us too elaborate and perhaps artificial, is that the medical expert has at his command a series of written opinions and precedents of an authoritative nature, and embodying the best judgment of his profession. To the physician in forming his opinion, they must serve as useful a purpose as do the written judgments of the courts to the lawyer in forming his.

By sketching, perhaps at too much length, some of these features of foreign law, I would be misunderstood if I seemed to think it wise for us to model our own according to the same detail. The real keynote and underlying principle, however, of the law of Continental countries in this respect, is that the expert should be the partisan of neither side; that he should be as dispassionate and just as one of our own Massachusetts judges; that in fact as well as in theory he should be the assistant of the court. That principle, if we are to hope that at some future time the medical expert shall enjoy all the respect and credence which it is his right and the right of science that he should enjoy, must be followed in some form or other. And if we are to reform our procedure in this regard, we must, I believe, finally seek relief from that source to which already the Common Law of England and of this country owe a debt which is difficult to measure, it must be sought in the body of the Roman jurisprudence.

THE UMILLIAN MURDER.[1]

BY HERBERT B. PERRY, M.D., AMHERST, MASS.

THE Umillian murder trial is said by those who are thoroughly conversant with such matters to be of peculiar interest because of the fact that more than three months elapsed from the time that the deed was committed before any actual evidence of crime was discovered, and of unusual interest because no direct evidence at any time was introduced as testimony into the trial. The murdered man's name was Casimer Jedrusick, the convicted murderer's name was Franciszeck Umillian. For ease in description I will refer to them as Jack, the victim, and Frank, the murderer.

On the 10th of April, 1900, I was summoned by State Officer McKay to go to Granby, not knowing what the case was except that a man's body had been found. I reached the farm of Monroe Keith, two and one-half miles from Granby Centre, about 9 P.M. and was informed that a man's body had been found in an old unused well. By the aid of a ladder I went into the well, which was about 30 feet in depth, and found the remains floating, that is a naked body except for a bran sack. The body was lying with the buttocks above the water, with the upper part of the trunk lying in a northwesterly direction. On going to the surface, I gave directions, and the body was brought up by the aid of a rope, and immediately taken to an old unused building near by where I performed an autopsy. The head had been severed from the trunk at the juncture of the second and third cervical vertebræ. The body was mangled and slashed and cut in all directions. First, a punctured wound just above the right clavicle 2 inches in length, another one parallel to it, over the head of the sternum, 2 inches in length. This was also a punctured wound. There was a vertical wound extending from the middle of the right clavicle, about 14 inches long, and ending 2½ inches above the umbilicus. There was a transverse wound about 12 inches long, beginning at the middle of the right clavicle, and ending at the middle of the left. On the right side a wound in the anterior axillary line, 7 inches in length, extending from the sixth to the twelfth rib on the right side. There were incised penetrating wounds on the right arm over the biceps muscle, 2 inches long. The left arm was crushed, lacerated and torn. A transverse wound over the anterior superior spine of the ileum, two incised wounds on the left thigh, 4 inches in length, and an oblique fracture at the juncture of the middle and upper third of the left femur. There were two incised wounds in the inside of the right thigh, one 7 inches in length, and one 4 inches in length. The ribs on the left side, from the first to the ninth, inclusive, were crushed and broken. The sternum was broken and four ribs fractured on the right side. The heart and pericardium were absent, the large vessels being partially torn and partially cut. The stomach was empty except about a pint

[1] Read before the Massachusetts Medico-Legal Society, February 6, 1901.

of a pultaceous mass. The intestines were normal, uninjured except a small wound in the ileum. The lower lobe of the left lung was lacerated and torn, the right pleural cavity had been opened. The lung was collapsed but was unwounded. The body was identified positively by a deformity of the index finger of the left hand. Evidently there had been a felon sometime and the distal phalanx was atrophied and bent inward toward the median line. Another means of identification were some enormous bunions on the great toes of both feet. After the body was taken to the surface and the discovery made that the head had been severed from the body, further search was made in the well with the hope and expectation of finding the missing head. It was not found, however, but we did find the clothing which was identified as belonging to Jack. This was delivered to one of the officers.

On the 12th of April, two days after the body was found in the well, the head was found buried in the soft earth of the barn cellar of Mr. Keith and delivered to me about six o'clock of the same day. The soft parts, including the brain, were totally destroyed, so much so that an attempt at differentiating one part from another was absolutely impossible. After a careful preparation of the skull, the wounds in the bony parts were as follows: I will speak of these numerically in the order in which they seem to me to have been inflicted. First, was a wound beginning $\frac{1}{4}$ of an inch posterior to the coronal suture and $1\frac{1}{4}$ inch external to the saggital suture on the left side. This wound was $1\frac{7}{8}$ inches in length, wider at the middle portion, being $\frac{3}{8}$ inch in its widest diameter. The second wound was $2\frac{1}{2}$ inches long, beginning at the inferior temporal ridge, extending downward and slightly backward from the squamous portion of the temporal bone, destroying the styloid process of the petrous portion of the temporal bone, and extending through and dividing the pterygoid process of the sphenoid bone. The third wound was 3 inches in length, $1\frac{1}{4}$ inches from the median line over the right occipital. This wound extends backward toward the right side. The fourth wound, 1 inch in length, and $1\frac{1}{4}$ inches from the median line and parallel to it, and 1 inch internal and behind the mastoid process. The nasal, the right malar, right zygoma, lachrymal and the anterior portion of the right wing of the sphenoid were separated from the adjoining parts and absent. The right lachrymal and superior maxillary were absent. The larger half of the frontal and squamous portion of the temporal and the left wing of the sphenoid were separated except for attachment of soft parts. The inferior maxillary bone divided in the medial line, the right half absent.

Now it will be particularly interesting to endeavor to weave a theory as to just how and in what manner these blows were delivered, the circumstances and the motives for such extensive mutilation and laceration. Taking first the blows on the head, as I have already said, I have numbered the wounds, one, two, three, four, according to the order in which they seemed to me to have been inflicted. The last time Jack was seen alive was on the 31st of December, 1899, Sunday morning, shortly after 10 o'clock, by his employer, Mr. Keith, to whom he had brought a horse and carriage that Mr. and Mrs. Keith might attend church at Granby. Jack, after leaving them, went directly into the horse barn with the intention of changing his clothing and shoes and going to Granby. He sat down on a bench near where the men were in the habit of keeping their footwear, stooped down to untie his shoes. Frank came in at this time, saw Jack and in a paroxysm of long pent-up rage and fury, seized a corn-knife (which is an instrument used for cutting corn, having a blade about 2 inches in width and 18 inches in length attached to a stout oak handle) from one of three which were hanging on a beam near by. He was standing somewhat behind and to the left side of Jack as he was stooping over fixing his shoes. That was the first blow that was struck, a crushing downward sweep of a sharp instrument penetrating the skull, and driven well into the base of the brain. From the blow and the shock Jack pitched forward. Frank sprang over the prostrate body and struck again, the point of the corncutter entering the skull just at the petrous portion of the temporal, crushing through the squamous portion of the temporal bone. As the body of the now unconscious Jack writhed on the floor in death agony, other blows were rained thick and fast on the unfortunate man until death put an end to the struggle. Frank then, with speed and keenness born of desperation, opened the trapdoor in the horse barn, dropped the body, clothing and all, down into the soft, muddy, foul bottom of the cellar. To bear out this theory, let me say here that on the clothing taken from the well was found soil from the barn cellar, and inasmuch as all of the ground outside of the barn cellar was frozen hard at this time, only from the barn cellar could this mud and filth have come. Frank closed the trapdoor, then went a roundabout way into the cellar and then began the mutilation of the body that has already been described. His first thought was to destroy as far as possible all means of identification. So he hacked and cut and slashed the face until all resemblance to features was gone. Then what must be done with the body. He severs the head from the body and attempts to further cut the body up to facilitate the disposition of it. Finding it a rather difficult task, he stripped the body of its clothing, thrust it into a sack, secreting it until some time that night or next morning, then taking it, with the clothing in another sack, carrying it across the road about 150 yards, and dropping it all in the old well having previously secured a large stone from a nearby wall, which he put in the sack with the clothing to sink it. Before an examination of the clothing had been made, I was asked the question if the mutilation of the body was done before or after the clothing was removed. My opinion was that most of it was done after the clothing was removed, basing my opinion on the length of

the wounds and the peculiar characteristic appearance of an incised wound, believing it to be impossible to inflict a cut like any of these through the thick winter clothing. The examination of the clothing proved my theory correct, for in it were found only two cuts, the ones corresponding to the punctured wounds over the right clavicle and over the sternum. An attempt was made to demonstrate the presence of blood on the floor and on the corncutter, but Professor Wood, of Harvard, was unable to find any traces. This result was what might have been expected, because over the floor where this tragedy is supposed to have taken place the constant tramping and use of three months would obliterate practically any blood-stains. The rusty corn-knives would, in three months, undergo such oxidation and change from atmospheric influence, that Professor Wood gave as his opinion that if it had been there it would be a practical impossibility to demonstrate it after three months had elapsed.

There is one point of particular interest to me, because as far as I am able to determine or ascertain, nothing of the kind has ever been observed. After the autopsy and search in the well for the missing head, thoroughly chilled and tired, I went to the house of Mr. Keith, into the kitchen where Frank was sitting hand-cuffed to the officer. It being my first actual experience with a real live murderer, I was particularly curious to note his actions and to see if he had the appearance of a guilty man. While sitting there, there occurred to me suddenly a plan which had been brought out in some of the French courts, that is, the sudden accusation and startling evidence suddenly presented to the suspected criminal, noting the effect on the heart's action through the nerve centres. Frank was sitting with his knees crossed and I was able to determine approximately his pulse rate, which I counted several times, and was able to count it at about eighty beats to the minute. After a short time Mr. McKay, the district police officer, came in, sat down and said, "Frank, where is that head? What did you do with it? Did you bury it in the barn cellar"? The man made no response except "I don't know," but his pulse rate increased until I was able to count about 120 beats per minute. I was satisfied, then, in my own mind that the man knew much more about it than he was willing to reveal. The subsequent finding of the head in the cellar certainly seemed as though he did know something about it.

UPON WHAT SORT OF INFORMATION SHALL A MEDICAL EXAMINER HOLD A VIEW?[1]

BY H. M. CULLS, M.D., BROOKLINE, MASS.
Medical Examiner, Eighth Norfolk District.

Mr. President and Fellows: — The title of my paper is, as you see, a question. I do not, therefore, come before you to impart any knowledge, but rather to provoke discussion, and decision, if possible, upon a moot point in medico-legal procedure.

I am aware that the subject in the title has been several times discussed before this society, but I have discovered that there exists a difference in practice among my brother examiners as to the method of procedure upon the point which my case illustrates, namely, upon the sort of information which made me cognizant that the body of a person whose death was "supposed to be due to violence," lay within my district.

The case is as follows: F. K., while aiming to board an electric car for Boston, passed in front of an outward bound electric, and was struck on the head by the latter, causing a compound comminuted fracture of the skull, from the effects of which he died, or presumably died, for a trephining operation was done before death.

This event occurred on the morning of March 16, 1900, and F. K. died early in the morning of the next day without regaining consciousness.

I was told of the accident shortly after its occurrence by a man who was on one of the electric cars, but as he reported that F. K. was not dead when picked up and removed to a nearby house, I, of course, had nothing to do.

I heard of F. K.'s death some hours after it had actually taken place on the 17th, but merely as a rumor that such was the fact. No notice of the death came to me from the police, none from the attending physician, and none from the undertaker. I will say that the police, like myself, had only the rumor; the attending physician was unaware that any legal procedure was even remotely to be considered, and I suppose that the undertaker minded his own business.

There are two points of interest in the circumstances as related: (1) I was aware on creditable information that the body of a person supposed to be dead by violence lay within my district, and (2) that he had supposedly been killed by "an accident upon a railroad."

You will remember that the inquest law requires an inquest upon a person killed by "an accident upon a railroad," and in my digest of the law I had interpreted the word "railroad" to be a generic term which covers steam railroads, street railways, and will, if the kind comes within my reach, cover "elevated" railways.

I say, therefore, that I was in a quandary. It was my first experience with a death "supposed to be due to violence" in which I had not received a "notice" sufficiently straightforward to cause me to take action. Yet I was convinced that I was specifically instructed by the law to hold an inquest in deaths after such a manner as this. It is natural that when in doubt one should turn to some one of greater experience than oneself, to call a consultation, so to speak, so I telephoned Dr. Draper of Boston, and stated the case as above. Dr. Draper informed me that it was his custom to consider deaths upon the street railways as coming under the law requiring inquests, but that it was no part of a medical examiner's business to hunt around after the evidences of a death whose

[1] Read before the Massachusetts Medico-Legal Society, February 6, 1901.

announcement had not come squarely to his ears.

With the first part of the reply I entirely agreed, but with the second part I confess I was not satisfied. However, I acted upon it as a whole and did nothing. The sequence was that having been called by the undertaker on the 19th, two days after the death, to sign a certificate for cremation, I learned the "cause and manner" of the death, and called an inquest in accordance with the practice in Boston and my own preconceived ideas of propriety.

In looking back over the *Transactions* of this society, I find that our subject has been but seldom touched upon. Certainly nothing on record from the lips of a medical examiner defines any rule to govern in the premises, if perchance any rule can govern. I have quoted to you the opinion of Dr. Draper, and I now quote to you the opinion of an officer of the law.

District Attorney Asa French, in a paper entitled "The Duties of a Medical Examiner Considered in their Practical Relations," read before this society June 10, 1879, says (Vol. I, No. 2): "What constitutes a notice to the first inquiry? I answer, any reliable information of the fact. The notice need not be a formal one; whenever and however the medical examiner becomes aware that a dead body has been found under circumstances of suspicion, his duty is to attend and take charge of it without delay."

This is a pretty clear definition of the sort of information which should set a medical examiner to work investigating, but unfortunately the words "under circumstances of suspicion" are somewhat ambiguous. These words materially limit the definition's scope, unless we conclude them to be synonymous with "supposed to have come to his death by violence." I am forced to believe that Mr. French's words were meant to be synonymous with the last clause quoted, because it seems to me to be their safest interpretation for guidance in the future. For instance, there was no suspicion of foul play in my case, but there was a very strong, in fact positive, opinion among the friends of the deceased that the death was in no way due to any fault of F. K.'s.

Now, unquestionably, it is just as much our duty to establish innocence as guilt, but if doubt, which cannot be swept away by view and autopsy exists, as to some one's negligent or criminal act, neither innocence nor guilt can be determined without an inquest. Mr. French's words, "under circumstances of suspicion," would give me just as much *reason* to act as the words "supposed, etc.," for there was certainly a "suspicion" that the motorman on the outward car was at least negligent, in fact this was the finding of the judge after the inquest.

Other quotations more or less to the point may be cited. In a discussion of a paper by Dr. Mead (June 12, 1894, Vol. II, No. 5), Dr. Munsell quotes a letter from District Attorney George Marston, who says, "You had better make ninety-nine uncalled for views than let the one-hundredth go by." We may draw something from this by inference.

Attorney General Knowlton, in a paper read before this society February 3, 1897 (Vol. II, No. 7), is clear enough in his definition as to who has a right to "suppose" that a death is by "violence." He says: "Who is to make the supposition? I answer, anybody, anybody." Would that he were as clear a little further on when he says: "I am told that there is some hesitation on the part of some of your body as to how far they should proceed upon rumors; . . . no one can lay down rules; the medical examiner must not be influenced by considerations of the county treasury, or by objections of county officers against the expense, but by considerations which are founded upon his own good sense and experience"!

All agree that the medical examiner may be in doubt at times and in cases. I believe that our guild will agree that rules by which to make up one's mind as to the exact procedure in all cases cannot be laid down. Fortunately, all medico-legal authorities are in accord that we should act for the best interests of the Commonwealth, and they define the best interests of the Commonwealth to be, to quote the words of Dr. Amory, "to err in cases of doubt upon the side of too much rather than too little investigation." (Oct. 5, 1881, Vol. I, No. 4.)

LEUCOCYTOSIS AND TYPHOIDAL PERFORATION.

FROM THE MEDICAL CLINICS OF THE MONTREAL GENERAL AND ROYAL VICTORIA HOSPITALS.

BY COLIN K. RUSSELL, B. A., MONTREAL, CAN.,

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MUCH has been written of late on the subject of leucocytosis in typhoid fever, and special value is attached to its diagnostic importance in impending or actual perforation. Upon what degree of leucocytosis we ought to depend has not been elucidated, though one realizes that the more marked this sign is, the greater may be our assurance in deciding on the presence of a serious complication.

As to the nature of the leucocytosis, differential counts have shown that the most marked relative increase occurs usually in the mononuclear cells, a condition to be expected in view of the preponderance of lymphatic gland involvement in enteric fever. Experience in the hospital wards with cases of typhoid fever has shown that the leucocyte count may not always be accepted off-hand as positive proof of the nature of the complications, even where a perforation has been suspected, for other conditions resembling perforation in their symptoms may yield marked leucocytoses, while, on the other hand, in cases of actual perforation there may be sometimes even a diminution of the number of white cells found in the blood.

In 37 examinations of uncomplicated cases of typhoid fever, the leucocytes showed a variation

between 2,000 to 12,000, an average of about 6,500. All counts were made as remotely as possible from the digestive period in order that I might obtain more uniform results.

Of the number of complicated cases examined the blood counts have shown most instructive and interesting results, results which, while showing the importance and diagnostic value of blood counts in enteric fever, nevertheless teach the important lesson that grave exceptions may occur, and that one may readily be led into error by attaching too great a significance to leucocytosis as a sign of perforative peritonitis. A few examples will readily explain the results obtained.

Case I. *Typical case showing value of blood examination; very doubtful signs of perforation; leucocytosis 28,000; operation: perforation found; recovery.*—A boy, age 7, was admitted from Dr. C. W. Vipond's practice to the Royal Victoria Hospital on the eleventh day of the disease. The malady had been attended by the usual symptoms incident upon incipient typhoid fever, and on the tenth day he complained of gradually increasing pain in the abdomen, especially in the right lower quadrant. There was no alteration in the pulse or temperature to indicate radical change, nor did the abdomen present, apart from slight general tenderness, any rigidity, distension or obliterated liver dulness. He vomited once a small amount of food. Dr. Garrow saw him in consultation and ordered his immediate admission to the hospital where he was carefully watched for the next few hours, and the blood counts by Dr. Tooke showed in four different examinations an average of 28,000 white cells. A few hours later he was thought to have slightly increased rigidity and Drs. Bell and Martin recommended operation which Dr. Garrow performed. The perforation, which was promptly discovered near the mesenteric attachment of the ileum, was sutured, and the boy made a good recovery.

After the operation the leucocytes diminished, two days later being 19,000 and two weeks subsequent to the operation, 9,000.

This, then, was a typical case to illustrate the value of leucocytosis, which was the main feature on which to base a conclusion as to the necessity for operative interference.

Case II. *Signs of perforation, definite; leucocytosis twelve hours after perforation occurred only 12,000; operation: recovery.*—Mrs. T. This patient was admitted to the Montreal General Hospital under Dr. Shepherd as an emergency case. She had developed signs of perforation on the fourteenth day of the disease and was operated upon soon after admission.

In this case I was enabled to examine the blood immediately before operation, and the patient, apart from the local condition in the abdomen, was in a good state for operation. The white cells numbered only 12,000, but the perforation signs were characteristic. Operation was performed and the bowel duly sutured. The patient enjoyed an uninterrupted recovery.

Case III. *Peforation; leucocytosis 4,800; operation: death.*—Mrs. V. Admitted to the Montreal General Hospital under Dr. Molson on the sixteenth day of the disease, with a blood count of 6,100 and no evidence of complication. Four days later the classical signs of perforation suddenly developed; a careful blood count was made by Dr. Henry three hours later, showing only 4,800 white cells. Operation was performed, the ruptured bowel discovered and promptly sewed, as were also six other ulcers which had already nearly eroded the thickness of the intestine. The patient unfortunately succumbed to the disease.

Case IV. *Signs of perforation; leucocyte count averaged 14,500; operation: no perforation found; recovery.*— Mr. St. L. This case was one of two which presented features of unusual interest and instruction. The patient came to the Royal Victoria Hospital under Dr. W. F. Hamilton's care on the tenth day of the disease, presenting the typical signs of typhoid fever with reaction to the Widal test. For four days the disease ran the usual uncomplicated course, when suddenly, on the evening of the fourteenth day of his malady, the man developed pain in the abdomen, chiefly in the left lower quadrant. The pain gradually increased until within thirty-two hours marked rigidity was present. Dr. Ballantyne made two blood counts in succession at this time, the white cells numbering respectively 16,000 and 13,000, an average, therefore, of 14,500, before operation was commenced.

The operation by Dr. Garrow, however, showed neither signs of perforation nor peritonitis; the condition of the bowel being nearly such as is to be expected at that stage of the disease. The abdominal wall was again closed, and the patient has since run the usual favorable course of the disease without complication. The blood count made on the day following the operation revealed, in the average of three counts, less than 10,000 white cells.

Case V. *Signs of perforation; leucocytosis 17,000; operation: no perforation found; mesenteric glands unusually large and swollen; recovery.*— Miss O. In this patient, age thirty-nine, at the Montreal General Hospital under Dr. Lafleur, the course of the disease had been favorable up to the seventeenth day, when, one hour after a bath, pain suddenly developed in the right iliac region, progressively increasing and with gradually developing rigidity. The tenderness and distention became so marked as to arouse the grave suspicion of perforation, and a blood count was made showing 17,000 white cells. Two hours later there were 14,000 leucocytes, and after a period of two hours more the cells were reduced to 10,500; showing, in other words, for typhoid fever, a moderate degree of leucocytosis.

Upon consultation with Dr. Armstrong, operation was decided upon and performed a few hours later, the local symptoms not having shown any signs of abatement. The laparotomy, however, failed to reveal any perforation, though two of the ileocecal glands were unusually tense and swollen.

In the absence of anything further the abdominal wound was closed, and the patient made an uninterrupted recovery, no further signs of perforation developing.

CASE VI. *Very indefinite signs of perforation; blood count 14,000 to 12,000; delay in operation to watch progress; sudden general peritonitis; leucocytosis 32,000; operation: death.* — Mr. A. This patient, an adult male, was admitted to the Royal Victoria Hospital under Dr. Martin on the twelfth day of the disease, with the characteristic symptoms, signs and reactions of enteric fever. Two days later he developed rather suddenly some pain in the region of the spleen, with tenderness on pressure over the ribs in that area; there was no rigidity nor abdominal tenderness elsewhere; the pulse remained unaltered and the leucocytes numbered 12,000. The condition remained thus for the following eighteen hours except that his general condition seemed slightly more serious and some tenderness developed in the right iliac fossa as well. The pulse, however, which had been about 96, was not raised during this time over 104, and there was still no increase in the rigidity.

The blood examinations were made every three hours by Dr. Tooke, and showed never more than from 12,000 to 14,000 white cells. For this reason, and more especially after the experience as recorded in Cases IV and V, operation was not immediately performed. The patient a few hours later became suddenly collapsed, with signs of general peritonitis, vomiting, rigidity, great tenderness and a rapid pulse. It was then, for the first time, that the blood count rose appreciably, 32,000 white cells being present in the cubic millimetre. The 2 previous cases recorded had had a higher leucocyte count without perforation, and with signs which in the early stage of the malady were far more characteristic of perforation, and yet the operation had revealed nothing.

With all the signs of collapse in this case and a pulse which could scarcely be felt when Dr. Bell saw the case before operation, the recovery after operation was not to be looked for, and the patient succumbed a few hours later.

REMARKS.

That one may obtain marked variation in the leucocyte count in typhoid fever is well known, and in Dr. Cabot's comprehensive observations he has shown that even where no complications are evident, one may obtain an average of over 15,000 white cells to the cubic millimetre. Further, that where certain abdominal complications other than perforation exist, the leucocytes may rise to a very marked degree. Moreover, in the case cited by him of phlebitis the white cells numbered 16,200 to the cubic millimetre.

Name.	Date.	Day of Disease.	Temp. at Time of Exam.	Relation in Time to Last Meal.	Nature of Diet.	White Cells.	Complications.
1. Drysdale.	Dec. 31, 1900.	13th.	103.2°		None.	22,000	Perforation.
2. Talbot.	Oct. 2, 1900.	14th.	104.3°	2 hours.	Liquids.	12,000	Perforation. Emergency case; count made twelve hours after perforation; operated on and perforation sutured; recovery.
3. Vosburg.	Nov. 27, 1900.	20th.	104.3°	2 hours.	Liquids.	4,800	Perforation. Abdominal pain between 7.30 to 8 A.M.; tenderness, tympanites and evidence of perforation, pulse rapid and irregular; operated on, and one perforation and six ulcers sutured; death.
4. St. Louis.	Dec. 20, 1900.	14th.	101°			14,000	Mesenteric glands enlarged. Operation; no perforation found.
5. Ogilvie.	Nov., 1900.	17th.	102°			17,000	Symptoms of perforation. Operation; no perforation present.
6. Anderson.	Jan. 7, 1901.	11th.	97.2°	2 hours.	Liquids.	30,000	Several previous counts at different intervals gave an average of 22,000.
7. Miller.	Dec. 31, 1900.	18th.			Liquids.	13,000	Cholecystitis.
8. Laundry.	June 29, 1900.	18th.	98.4°	2 1-2 hours.	Custard.	13,000	Otitis media, which later disappeared.
9. Kelly.	June 30, 1900.	46th.	99.4°	3 hours.	Milk, toast, eggs, custard.	20,000	Simple bronchitis.
10. Powers.	July 3, 1900.	22nd.	99°	2 hours.	Liquids.	12,000	No complication.
11. Demers.	June 30, 1900.	18th.	98.4°	3 hours.	Liquids.	13,000	Septicemia; died; no perforation.

In a number of complicated cases of typhoid fever which I have examined, the same results could be determined; in one patient in whom the only discernible complication was a simple bronchitis, there were 20,000 leucocytes to the cubic millimetre. In a case of cholecystitis 13,000; in one of mild middle ear disease 13,000, and in a case complicated by general sepsis, the white cells, as was to be expected, showed a similar increase, namely, 13,000 to the cubic millimetre. The cases above cited lead in the main to the following conclusions:

(1) That in perforation it is the general rule to have a leucocytosis, but that the degree may vary within wide limits.

(2) That the leucocytes, while appearing as a rule early, may not be at all marked until the general peritonitis and collapse have supervened.

(3) That there may be an utter absence of leucocytosis with marked perforation and peritonitis; in fact, that the cells may be lower than normal.

(4) That with typical signs of perforation and a definite leucocytosis there may be no such complication present, and an operation may be performed unnecessarily.

(5) That a marked degree of leucocytosis may occur in complications other than perforation, for example, bronchitis, cholecystitis, etc.

(6) That with pain and tenderness in the abdomen, coming on suddenly during an attack of typhoid fever (and in the absence of evidences of cholecystitis or other definite complication), and a distinct leucocytosis, even without other signs of perforation, an exploratory operation is justified, even advisable, thereby obviating the dangers of a fatal issue from too great a delay. The exploratory operation in Cases IV and V, done unnecessarily, resulted in no bad consequences, and the patients made a satisfactory recovery.

In conclusion I would like to record my indebtedness to Dr. C. F. Martin for assistance in carrying out my little investigation, and to the other clinicians of the hospitals for kind permission to use their material.

Clinical Department.

CONTUSION OF THE ABDOMEN; NO EXTERNAL WOUND; RUPTURE OF THE DESCENDING COLON; FECAL ABSCESS; DRAINAGE; SUTURE OF RUPTURED GUT; RECOVERY.

BY CHARLES L. SCUDDER, M.D., BOSTON.

J. H. M., thirty-six years old, was caught between a station platform and a moving railroad car. He was crushed. A few hours later he entered the accident room of the Massachusetts General Hospital, service of Dr. A. T. Cabot, in a condition of moderate shock. The temperature was 100°. Over the left iliac crest was an hematoma slightly tender and fluctuating. The urine was smoky in color. The white blood count was 10,200.

The first night he vomited three times, the vomitus consisting of the stomach contents. The next morning the abdomen was slightly distended. The third day all food by mouth was stopped on account of nausea. On the fifth day he had two fecal dejections. There was no more vomiting. On the sixth day the temperature was 101°. The abdomen was less distended. On the left side in the loin the hematoma was tender and fluctuating and the skin over the area was red. Under ether the swelling was opened and a large fecal abscess was evacuated. The cavity toward the abdominal side was bounded by the small intestine, descending colon and omentum. The muscles of the abdominal wall had been torn from their attachments to the iliac crest. At the extreme depth of the abscess was discovered an opening into the descending colon which admitted the tip of the forefinger. The abscess, so well separated from the peritoneal cavity, was thoroughly evacuated and its wall cleansed with sterile water. Gauze drainage was used. After the sloughing portions of the wound had granulated, some eight weeks after the accident, an unsuccessful attempt was made to close the fistula. Ten days later a second attempt at closure succeeded. The edges of the fistulous opening were refreshed, all tension in the part concerned was removed and the gut was closed with silk sutures.

The particular interest in this case lies in the fact that the rupture of the bowel was not attended by such symptoms as would ordinarily lead one to suppose that a serious injury had been received.

A suppurating hematoma was evident. The rupture in the gut was concealed.

The very important sign that was misinterpreted was that of vomiting. This symptom, instead of being explained by the patient's statement that he had eaten something indigestible before he was injured, should have suggested a lesion of the bowel, or at least serious involvement of the peritoneum.

Vomiting once of stomach contents after an abdominal contusion is of no especial importance. Continuous, unexpected vomiting without any apparent reason is significant of an intestinal lesion. This is true in spite of the absence of other signs of involvement of the peritoneum.

During convalescence this patient had a pneumonia and a phlebitis of the left thigh and leg.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

THE INFECTIOUS AND TOXIC ORIGIN OF NERVOUS DISEASES.

At the tenth congress of the Societá Freniatrica Italiana in Naples last October, one of the subjects for formal discussion[1] was the intoxications and infections in the pathogenesis of mental diseases and neuropathics. This discussion was opened by D'Abundo, who maintained that infections and intoxications are the most frequent sensible and active factor in the pathogenesis of nervous diseases in general, in every period of life both intra-uterine and extra-uterine. The toxic infectious heredity (as syphilis or alcoholism) facilitates in the descendants the evolution of toxic-infectious neuropathies with a classical anatomico-pathological basis. Infections and intoxications in the progenitors, or in the mother during gestation, very often produce in the fetus very marked retardation of the processes of myelinization of the different systems of nervous connections. Some degenerative forms of neuropathy are often to be regarded as due to defective cerebral or spinal organization, the result of toxic pathological processes in the embryo which have been healed. The

[1] Rivista Sperimentale di Freniatria, xxvi, 919, December, 1900.

infections and intoxications of the nervous system facilitate the evolution of secondary intoxications, which feed, re-enforce and complicate the clinical phenomena and result in complex forms due to multiple intoxications. The toxic-infectious agents may act upon any part of the nervous system, giving rise to peripheral or central, systemic or disseminated localizations, and resulting in acute or chronic neuropsychoses. Mental confusion represents the commonest clinical type of toxic-infectious action, although other forms of psychopathy may also have equally a toxic origin. Acute delirium may be regarded as a clinical manifestation due to various toxic-infectious agents, not merely the special bacillus described by Bianchi and Piccinini, but also the colon bacillus, the streptococcus and others. The toxic-infectious origin of general paralysis is greatly strengthened by each new study of its etiology. The clinical manifestations of infections and intoxications of the nervous system are the result of more or less pronounced disturbances of nutrition, which in certain phases are susceptible of restoration to the normal, even when the symptoms make us doubtful of a cure. The treatment, until we know precisely each morbid cause, should favor the elimination of the toxic products and try to neutralize or check the production of secondary intoxications.

Agostini, the co-referee in the debate, divides the toxic-infectious agents into three classes: The chemical poisons entering the system from without; the toxic-infectious processes; and the intoxications that are purely endogenous, the so-called auto-intoxications. Alcohol, naturally, takes the chief place in the first class, as giving rise to the most severe and diffuse forms of nervous disease, from multiple neuritis to neurasthenia, and also to various psychopathies, transitory mania, delirium tremens, and even forms closely resembling if not identical with general paralysis. Of almost equal importance in Italy is pellagra, due to the poison of diseased maize, which, like other chronic intoxications, may cause severe systemic diseases of the spinal cord, peripheral neuritis, and diffuse alterations in the cells of the brain. In addition to the direct toxic action of the disease, other forms of auto-intoxication may arise secondarily from the disturbances in the alimentary canal. The children of the pellagrous, too, may present various forms of severe nervous disease, degeneration, infantilism, idiocy, and the like, similar to the forms seen in the children of alcoholic or syphilitic parents. The influence of the true infectious diseases is well known; even the milder forms, such as influenza, often giving rise to severe diffuse affections. Among these acute delirium has been of late the object of special study, and in a considerable number of cases various micro-organisms have been found in the blood or the meninges. In some cases where the delirium is secondary to other disturbances, Agostini suggests that the blood loses its bactericidal power under the influence of the primary disease, thus facilitating the invasion of the brain by some of the commoner forms of bacteria. The so-called auto-intoxications are the forms which are today most in doubt, since we have not yet been able to isolate the poisons or to determine absolutely the method in which they are formed. In health the vital chemical processes of various tissues develop certain toxic substances, which are either excreted or destroyed or neutralized by certain organs, as the liver, the thyreoid, the supravenal capsules, the lymphatic glands, etc. In diseased conditions this excretion or destruction is impaired. Overwork or disturbed nutrition may increase the production of these toxines, and provoked action of certain glands (as the thyreoid in myxedema or the pituitary gland in acromegaly) may also give rise to auto-intoxication. Most of these toxines originate in the alimentary canal. Among the commoner symptoms to which such toxines may give rise are the familiar ones of mental torpor, physical prostration, irritability, somnolence, vertigo and headache. Clinically, also, the relation between convulsions and acetonuria, and tetany and gastric fermentation have had an important bearing upon the doctrine of auto-intoxication, as well as the frequent co-existence of certain psychoses with digestive derangements.

On the laboratory side many studies have been made of the gastric juice, the urine, the blood-serum, the sweat and the cerebro-spinal fluid in regard to toxicity and bactericidal power. These studies have not as yet given constant results, from which definite conclusions can be drawn, but there is an increasing amount of evidence showing that in various nervous and mental affections thought to be due to auto-intoxication, the various secretions and the blood show decided departures from normal in regard to toxicity, bactericidal power and the like. Pathologically, the changes found in these conditions are extremely similar to those found after intoxications from without or after known infections. The same clinical phenomena and the same changes in the neurones may be found, for example, after poisoning by alcohol, or after infection by typhoid, as after this hypothetical auto-intoxication. It therefore seems logical to assume that these unknown agents have a similar pathogenetic action and provoke nervous and mental disturbances in the same way as the poisons and infections whose nature we know. In such conditions, moreover, treatment directed against auto-intoxication, especially auto-intoxication from the alimentary tract, seems to promise the best results.

REFLEXES IN TYPHOID FEVER.

Remlinger[2], from a study of the reflexes in 100 cases of typhoid fever, has found them exaggerated in 32 cases, unaltered in 22, diminished in 17, and abolished in 29. There is no definite relation between the state of the reflexes and the form of the typhoid, but exaggeration of the reflexes was seen chiefly in grave cases and the ataxic and ataxodynamic forms. The normal condition was seen in the benign forms. We cannot draw an

[2] Rev. de Méd., xxi, 46, January, 1901.

unfavorable prognosis from the diminution or absence of the reflexes. Whatever the condition of the reflexes during the progress of the disease, there is a decided tendency to exaggeration at the period of convalescence. Ankle clonus was found in 20 cases, often on only one side. It usually coincides with an exaggeration of the other reflexes, but it may occur when they are normal or even absent, even when the tendon Achilles reflex is absent. It is sometimes seen at the moment of a fall in temperature, coinciding with profuse sweats or polyuria. In such cases it may be considered a true critical phenomenon. Patellar clonus is also seen, but this is always associated with exaggeration of the knee jerks. The cutaneous reflexes show little that is remarkable, but the great toe is never extended. The explanation of the changes in the reflexes may perhaps be referred to slight changes in the spinal cord, such as various observers have found, but Remlinger does not consider the possibility of changes in the peripheral nerves, such as are often found in the various acute infections. The existence of ankle clonus when the Achilles tendon reflex is lost is not easily explained on any hypothesis, unless, perhaps, we consider it a simple phenomenon of idiomuscular contraction.

Lévi[3], on the other hand, has found the Babinski reflex, the dorsal extension of the great toe, in 10 out of 20 cases of typhoid fever. All the cases recovered; 2 presented symptoms of mild, acute myelitis and 1 had temporary retention of urine. None presented signs of meningitis. In 18 of the cases the tendon reflexes were exaggerated, and in 2 they were normal. In 5 cases ankle clonus and the Babinski reflex coexisted, in 4 cases clonus existed without the Babinski reflex, and in 5 cases the Babinski reflex existed without clonus. The dissociation of the two symptoms, the Babinski reflex and ankle clonus, must be explained by the hypothesis that the lesion causing the Babinski reflex is different from that causing ankle clonus. The exaggeration of the reflexes, ankle clonus and the Babinski reflex all indicate that the spinal cord is frequently affected in typhoid fever, and, after a period of latency, chronic myelitis may develop, especially if there be any new intoxication or infection. In regard to the prognosis of the typhoid fever itself, the existence of a Babinski reflex does not add to the gravity, as all the cases presenting it recovered, while some, which did not have a Babinski reflex, died.

BRACHIAL PARALYSIS.

Grenet[4] distinguishes the various forms of paralysis of the brachial plexus according to the portion of the plexus involved. These paralyses may be motor, sensory or mixed. He distinguishes various portions of the brachial plexus: the intravertebral portion, the extravertebral portion, the plexus proper, divided into three segments, and the terminal branches. There are as many forms of the mixed paralyses as there are portions of the plexus, and they can be distinguished by the examination of the collateral nerves. The root situation of a superior paralysis is recognized by the paralysis of the supraspinatus and infraspinatus muscles, which are innervated by the suprascapular nerve. The intravertebral situation of an inferior root paralysis is recognized by paralysis of the serratus magnus. The inferior root paralysis of the first portion of the intravertebral segment (before it leaves the intervertebral foramen) is recognized by disturbances of the pupil, unless the lesion is beyond the sympathetic anastomosis. There is no marked difference clinically between an extravertebral inferior root paralysis and an inferior paralysis of the first segment of the plexus.

All the above forms, however, are of secondary importance; the two chief clinical forms are those of the root type and of the terminal type. The paralyses of the plexus proper are accessory forms dependent upon one or the other of those two great types. Pure motor paralyses result ordinarily from an isolated lesion of the anterior root, and a lesion of at least two roots is usually required to produce paralysis. Pure sensory paralyses are always due to intravertebral lesions of the posterior roots. Individual variations in the sensory distribution seem very great, for a lesion of one root may sometimes cause sensory disturbances, while, on the other hand, a lesion of three roots may not cause any such disturbance. There may sometimes be a limited anesthesia from a lesion of a single root, when other roots supplying the same region are intact. Paralyses of the root type are characterized by the localization of the disturbances in a particular group of muscles and by the special distribution of the anesthesia. Paralyses of the terminal type are characterized by the localization of the symptoms in the exact region of one or more peripheral nerves. Paralysis of the peripheral nerves, however, may resemble a root paralysis when several nerves are involved. Hysteria may be recognized by the mode of distribution of the sensory disturbances.

NEURITIS.

Vyrouboff[5] has made an elaborate pathological study of a case of multiple neuritis presenting also the familiar symptoms of the so-called polyneuritic psychosis. He found the whole neuro-muscular system and all the segments of the central nervous system affected, the changes being of toxic origin. In the nerves and muscles he found simple atrophy of the nerve and muscle fibres with primary degeneration of both sets of fibres; the nerves showed the peri-axillar neuritis of Gombault. The cells of the spinal ganglia showed chromatolysis and fatty and pigmentary degeneration, or more rarely, secondary chromatolysis. In both the central and peripheral fibres of the ganglia there was a breaking up of the myeline which could be followed into the posterior roots and into the cord. In the posterior columns of the cord there was an ascending degeneration

[3] Rev. Neurol., viii, 1005, Nov. 15, 1900.
[4] Arch. gén. de méd., October, 1900.
[5] Vratch, p. 377, 1900; Ref.: Rev. Neurol., ix, 19, January 15, 1901.

of the long systems of exogenous fibres extending to the nuclei of the columns, and degeneration of the short systems of fibres which enter the gray matter through the posterior horns. The cells of the anterior horns were diminished in number and showed primary chromatolysis and fatty and pigmented degeneration. The anterior roots and also the roots of the cranial nerves were degenerated. The degeneration in the pyramidal tract could be traced upwards from the sacral region of the cord, through the decussation of the pyramids in the medulla, the pyramidal tract in the pons and crus and the internal capsule to the motor convolutions in the cortex. In the cerebellar systems there was degeneration of the direct cerebellar tract, of the arciform fibres of the cerebellar cortex, of the large cells of the granular layer, of the cells of Purkinje and the neighboring fibres, and in all parts of the anterior cerebellar peduncle, the red nucleus, the tract to the optic thalamus, and the cells of its external nucleus. Degeneration was traced in the fundamental fasciculus of the antero-lateral column and in Gower's tract up to the pyramids. The internal fasciculus of the lateral column was everywhere intact. The most marked alterations in the cerebral cortex were found in the parietal lobe; here there was a diminution in the association fibres and a diminution and fatty and pigmented degeneration of the cells. The combination of the clinical symptoms of the psychosis, which consisted of mental confusion and disturbance of orientation in time and space, with the anatomical lesions of the parietal lobe were regarded as confirmatory of Flechsig's hypothesis that a lesion of his posterior association centre in this region leads to confusion and the impossibility of orientation in time and space.

In the discussion of Vyrouboff's paper Bechterew maintained that the cortical lesions in the polyneuritic psychoses were incontestable, and that these cases were confirmatory of Flechsig's claim that these parietal centres contain only association fibres destined for the higher mental functions. Although the lesions in these cases are more extensive than those often found, they add further confirmation to the opinion that is steadily gaining ground that multiple neuritis is not an affection of the peripheral nerves simply, but that in very many cases it is an affection involving a considerable portion of the central nervous system as well.

The earliest symptoms of multiple neuritis are usually considered to be paresthesia or paresis. Popoff[6], from a study of four cases, shows that there is a quantitative and qualitative change in the electrical excitability of the nerves and muscles of the extremities for some time before these other symptoms appear. These clinical observations agree with the recent anatomical researches of Braun, who slowly poisoned dogs and rabbits with alcohol and found changes in the cells of the brain and spinal cord and degenerative atrophy of the nerves before there was any disturbance of motion or sensation. The disappearance of electrical excitability with persistence of voluntary motion, is probably explained, like the reappearance of voluntary motion during convalescence before the return of electrical excitability, by the hypothesis that the electric current is conveyed by the myeline sheath and voluntary motion by the axis cylinder process. Popoff's investigations are of great importance in prophylaxis. By careful electrical examination the first onset of neuritis may be detected in those exposed to such poisons as alcohol, lead or arsenic, the patient may be removed from the iufluence of the poison and the disease may thus be arrested in its early stages, before it attains the severity or the hopelessness that it manifests later.

(To be continued.)

[6] Neurol. Centralbl., xix., 504, 655, July 1, 15, 1900.

Reports of Societies.

THE NEW YORK ACADEMY OF MEDICINE.

STATED meeting, March 19, 1901, E. FRANKLIN SMITH, M.D., chairman.

DISCUSSION ON DIABETES MELLITUS.

DR. HENRY S. STARK read a paper on

DIAGNOSIS AND PROGNOSIS.

It was generally assumed, he said, that the diagnosis of the disease depends on (1) The detection of glycosuria, and (2) the proper interpretation of certain deviations from good health. Having spoken of the importance of an early diagnosis, he mentioned two circumstances which might mislead the observer, namely, a comparatively low specific gravity and a small amount of sugar in the urine. Sometimes, also, the sugar present fails to reduce the cupric oxide. In view of the unascertained pathogenesis of diabetes mellitus, the diagnosis of the disease is not always an easy matter. It is well known that glycosuria may result from overindulgence in carbohydrates, from shock, from the use of anesthetics and a number of other causes, and yet the patient have no real diabetes. It is only when the glycosuria is constant or recurrent, and is attended with such other symptoms as polydipsia, polyuria and failing nutrition, that we can be assured that the latter is present. In other words, the characteristic syndronic, in connection with glycosuria, is necessary for the diagnosis. Among the other signs frequently noted are periodic attacks of headache, fatigue after slight exertion, and failing vision, slow in the aged and rapid in the young. Among the nervous symptoms are irritability of temper, moroseness, and absence of patella reflex.

As an aid to diagnosis bacteriology has been of no service, and examination of the blood has not as yet given any satisfactory results, although the blood-staining methods of Bremer and Williamson seem to promise something in the future. The tests for glucose, the only one of the carbohydrates

of clinical interest, are innumerable. None of them, however, is infallible, and perhaps the nearest approach to a perfectly reliable one is the great fermentation test of Roberts. Fehling's test still holds its own for practical utility, but it must always be borne in mind that there are a number of other substances besides glucose which may reduce copper. The secret of success is in making control contests. Some of the most sensitive tests are the most unreliable. For general office use one of the most delicate, accurate and satisfactory is that by the saccharometer devised by Dr. J. Rudioch, of New York, which he describes in a contribution to the Festschrift in honor of Dr. A. Jacobi.

The majority of cases are amenable to treatment, and an opinion as to the prognosis should never be expressed until after the patient has been under observation for a considerable time. In making a prognosis a number of circumstances must be taken into account. Among these are the following: (1) Age. In children the disease is rapidly fatal, and old age is an advantage. (2) Power of assimilation of carbohydrates. (3) Early recognition of the disease. In this connection Dr. Stark dwelt upon the importance of frequent examinations of urine in health and expressed the opinion that all our patients should be instructed to have specimens examined regularly twice a year. In this way diabetes, as well as other diseases, could be detected in their incipiency, and this would afford a great advantage in the way of efficient treatment. (4) The appearance of intercurrent diseases. (5) The condition in life. (6) The amount of urea and the presence of acetone, diacetic acid and other organic substances in the urine. (7) The capacity of the system to absorb fats and proteids. All cases of diabetes may be divided into three types, the mild, the medium and the severe.

DR. H. STERN read a paper on

ETIOLOGY AND PATHOGENESIS.

He said he had found that in eleven years (1889–1899 inclusive) there were reported 1,867 deaths from diabetes mellitus in New York City. Of these 931, or nearly 50%, were in females. Yet the statement had been generally accepted that this affection occurs two-and-a-half times as often in men as in women. Among negroes there were only 15 deaths from diabetes in the eleven years. The Hebrews and the Irish each represented 25% of the mortality — a result which he attributed to in and in breeding. Diabetes is very frequent among the poorer classes, and of 102 males who died in the year 1899, 66 were residents of tenement houses.

For clinical purposes we may trace the affection to one or more of the following causes:

(1) Excessive ingestion of glucose: Alimentary glycosuria.

(2) To diminution, functional disturbance, or excessive or abnormal disintegration of the erythrocytes (glycosurias following the introduction of poisons and toxines, or the perverted function or removal of certain glands — pancreatic diabetes, seegen's grave diabetes): Hematogenic diabetes or glycosuria.

(3) Traumatism: Neurogenic glycosuria.

(4) Interference with the glycogenic function of the liver to such an extent that the carbohydrates are not normally utilized: Common or hepatigenic diabetes.

(5) General protoplasmic deterioration and plasmolysis: Diabetic deterioration.

DR. STERN thought that the foreign element in the erythrocytes of diabetes, found first by Bremer, and met with by himself in over 300 cases, was the possible pathogenic substratum of diabetes. He recognized this as early as 1896. His supposition was that the oxygen had been partially displaced from its hemoglobin combination by carbon monoxide, of catabolic origin. The abnormal element in the cellular substance of the erythrocyte is presumably of autochthonous origin, though it may perhaps be derived from external sources. If the foreign substance originates within the organism it is either enterogenous or histogenetic. It does not seem to be due to a retention anomaly, as carbonemia and carbonoxydemia fail to reduce aniline dye stains (eosin-methylene blue; coryo red; bichloride scarlet — the latter being the one almost always used by Dr. Stern). If the substance in question were derived by resorption from the gastro-intestinal canal it could not become an almost permanent factor in the blood, as this would presuppose a long and uninterrupted absorption of the products of intestinal hyperfermentation and putrefaction, a condition rarely existing, and notably infrequent in diabetes. On this account we have to consider the erythrocytic foreign element as a product of abnormal cell and organ activity or disintegration. This foreign substance, whether originating from perverted plasmolytic or nucleolytic processes or from anomalies of internal secretions, may thus safely be classed among the toxic principles.

The plausibility of the entosystemic origin of the substance deserves some attention. A considerable number of authors have noted the appearance of diabetes in previously healthy individuals after they have come in contact with diabetics. The transmissibility of the affection therefore seems possible, although no convincing proof of this has as yet been adduced. One might surmise that the abnormal blood constituent represents the metabolic products of a specific bacterium, and that the potency of such a toxine gives rise to the glycosuric phenomenon. Whether this foreign element constitutes the underlying etiological factor of the affection, or whether it is but another of the metabolic products of the diabetic condition, cannot as yet be pronounced upon.

Dr. Stern then spoke of "diabetic deterioration," a condition which he said was first recognized by himself.[1]

The three clinical varieties of diabetes arising from distinct direct causes, he went on to say, seem to be but the consequence of one and the

[1] New York Medical Record, December 18, 1897.

same fundamental disturbance. They may be thus differentiated:

(1) The glycosuria disappears after complete or partial exclusion of carbohydrates. The excreted dextrose is due to deficient glycolysis.

(2) The glycosuria persists after complete exclusion of carbohydrates. The excreted glucose is due to proteolysis.

(3) With the continued excretion of dextrose larger amounts of nitrogen are egested than were introduced with the nutriment. The excreted dextrose is due to plasmolysis.

DR. H. D. CHAPIN spoke on

DIABETES IN CHILDREN.

The three most notable points in regard to the disease in childhood, he said, were the following: (1) It is extremely rare; (2) the most marked symptom is exceedingly rapid emaciation; (3) it is almost invariably fatal, and in a short time. He described 2 cases which he had seen in consultation. The first was that of a boy four years old who was taken with what was supposed to be an ordinary cold and afterwards treated for malaria. He grew steadily worse, rapidly wasting away, and an examination showed the urine to be loaded with sugar. Death ensued in three weeks from the onset of the disease. The other was a similar case in a boy of six years. The urine contained 5% of sugar, and the emaciation was even more rapid. For some time before death the child was in a semicomatose condition. In the hospitals with which he was connected, Dr. Chapin said that it was his routine practice to have his house staff make examinations of the urine of all patients. Sugar was almost never found, while albumin and traces of casts were very frequently met with in pneumonia, gastro-enteritis, and many other diseases. The mere presence of glycosuria was not sufficient to base a diagnosis of diabetes upon, and he had recently seen a child who, notwithstanding the presence of sugar in the urine for six weeks (according to the statement of the attending physician), continued bright and active, without any emaciation, and eventually made a complete recovery.

DR. PEARCE BAILEY read a paper on

THE NERVOUS SYSTEM IN DIABETES.

We are still in doubt, he said, as to the real pathogenesis of the disease, and as additional investigations have been made the case for the rôle of the nervous system in the matter of causation has been weakened rather than strengthened. Ever since the experiments of Bernard it has been known that glycosuria follows various irritations of the nervous system; but it is found that the condition is always transitory. If, on the other hand, the pancreas is completely extirpated, a glycosuria results which is permanent and progressively fatal. Traumatism is a very common cause of glycosuria. After 212 cases of head injuries this was found in 20, and of 24 cases of fracture of the vault and of 21 cases of fracture of the base of the skull, glycosuria resulted in 5 of each class. It is true that diabetes is not infrequently associated with nervous disease, especially conditions resulting from cerebral hemorrhage due to degeneration of the arteries. Such affections as sciatica and neuritis are sometimes also associated with diabetes, but these are liable to occur in connection with any wasting disease. Our conclusion then is that the primary cause of diabetes is not to be found in the central nervous system.

DR. S. SHERWELL read a paper on

CUTANEOUS COMPLICATIONS.

He mentioned the following, in the order of their frequency and importance:

(1) *Xeroderma.* — This is a functional variety, coming on rather suddenly and often associated with pruritus. The faucial appearances, which are peculiar and characteristic, not infrequently lead to the diagnosis of diabetes.

(2) *Pruritus.* — This is of a most severe and distressing character, and of itself should excite suspicion.

(3) *Eczematous manifestations.* — These may occur in any situation, but are most frequently found on the flexor surfaces and especially about the anus and genitals, and are characterized by the most intense itching. They are more efficiently treated by mild lotions of such agents as bichloride of mercury (1 to 1,000) and salicylic acid than by the ordinary unguents.

(4) *Furuncular and carbuncular manifestations.* — These also should excite suspicion of diabetes, and they require systemic treatment.

(5) *Erythematous manifestations.* — These sometimes result in such grave conditions as erysipelas and gangrene, especially in the lower extremities.

(6) *Bullous manifestations.*

(7) *Tumor formations.* — These are quite rare. The variety generally seen is xanthoma, the most frequent seat of which is the inner canthas of the upper eyelid. The other variety is a blastomycetic dermatitis, which has been described by Hyde, Montgomery, and Gilchrist of Baltimore.

Dr. N. J. HEPBURN read a paper on

OCULAR MANIFESTATIONS.

These, he said, are of two classes, (1) Those due to defective innervation, and (2) those due to defects in nutrition. Cataract is frequently met with in connection with diabetes, but it is doubtful whether it is not simply a concomitant, rather than due to the diabetic condition. Among the other serious affections liable to occur are optic neuritis and hemorrhage and detachment of the retina. Parenchamatous or pustular keratitis, when syphilis and tuberculosis can be excluded, should excite suspicion of diabetes. In brief, the eye affections most commonly associated with this disease are as follows: (1) Cataract; (2) recurring hordeolum, or sty; (3) paresis of accommodation; (4) keratitis.

DR. ROBERT T. MORRIS spoke on

DIABETES IN SURGERY.

He said that while until recently many cases for operation were forbidden to surgeons on account of the existence of this disease, at the present time but few such cases were excluded. In diabetes the blood, loaded with sugar, draws serum from the tissues, so that the latter become too dry. This hygroscopic action of the sugar, therefore, interferes with the repair of wounds. It is probable also that in this condition of affairs the alexines are not properly formed to meet the toxines. It is, consequently, of great importance that the surgeon should be especially careful in operating, for if infection once begins, it is very apt to be progressive. Diabetic cases, Dr. Morris said, were the only ones in which he took the precaution of wearing rubber gloves when operating. Another reason why diabetes interests the surgeon is because the sugar in the blood makes the serum an excellent culture medium. As to the use of anesthetics when this disease is present, it is best to avoid ether, for the reason that the latter, added to the effect of the sugar on the kidneys, may precipitate a nephritis. It is advisable, therefore, to begin with nitrous oxide gas and afterwards continue with chloroform, or, if practicable, with nitrous oxide gas and oxygen.

Transitory diabetes is often met with as the result of injuries. About one-half the cases of this occur in connection with head injuries. In many cases of traumatic glycosuria it is found that polyuria continues for a considerable time after the sugar has disappeared; which would seem to indicate that the functional disturbance of the liver probably terminates before that of the kidneys. After touching upon other points Dr. Morris referred, in conclusion, to a matter liable to come up in accident assurance cases. When a surgeon is asked, in a case where diabetes has been noted after an injury, whether the condition has been caused by the injury, he should be cautious in expressing a positive opinion, for it may be found that the patient was the subject of diabetes before the injury was met with.

DR. ABRAHAM MAYER read a paper on

THE TREATMENT OF DIABETES.

Until we have discovered the exact etiological factors of the disease, he said, our treatment must be one of symptoms. Among the objects of treatment were the elimination of sugar from the blood and urine, the maintenance of the general system, and the prevention of complications. The reader naturally devoted special attention to dietetic treatment. It was a great error, he thought, to exclude the carbohydrates entirely, except temporarily for diagnostic purposes. He gave descriptions of "rigid diet" and "mild diet," and said that many cases would do perfectly well on the latter. In placing a patient upon a course of restricted diet it was important to begin in a very gradual way, so that the system should become accustomed to the change.

With regard to medication, he had found opium, arsenic and bichloride of mercury the drugs of most service. Opium, which was of the greatest general use in controlling various annoying symptoms, should not be used continually, but interruptedly. It should be given in small doses (not more than $\frac{1}{8}$ a grain three times a day at first), and its constipating effect should be counteracted by cascara sagrada, or other laxative. The only two forms in which he had employed arsenic were Fowler's solution and bromide of arsenic. The latter was given in doses of from $\frac{1}{30}$ to $\frac{1}{10}$ of a grain, in much water, three times a day after meals. There were certain cases of diabetes, generally occurring in middle age, which were like a bacterial invasion or ptomaine poisoning. In these the bichloride of mercury had a certain, perhaps specific, value. The dose, at first small, should be increased to $\frac{1}{8}$ of a grain. Even if the sugar was not entirely eliminated, many patients could get along very comfortably for years. The diabetic's attention should be diverted as much as possible from himself, and he should be free from professional or business cares and other sources of worriment. He should wear warm clothing and avoid fatigue and all excesses. Massage and carbonic acid baths were often of great service, and visits to various health resorts, with the use of mineral waters to aid digestion, had a good effect. About 25% of diabetics died from phthisis.

DR. E. H. BARTLEY spoke on

GLYCOSURIA AND DIABETES MELLITUS IN RELATION TO LIFE INSURANCE.

After stating that this was a question of diagnosis and prognosis, he referred to the presence of sugar, in small quantity, in normal urine, and said this was a fact now pretty generally accepted. With the use of the ordinary tests this could not be detected, but under special tests it appeared in about one-third of the specimens of normal urine examined. Now when does a urine contain enough sugar to constitute what is generally known as glycosuria, and when does glycosuria become diabetes mellitus? Shall an applicant be absolutely rejected because he has a small amount of sugar in his urine? The rule should be that any case in which sugar is detected by the ordinary Fehling or Trommer test calls for a reexamination. He had never yet met with an instance in which a urine containing sugar did not reduce copper. Cases of real diabetes are met with, however, in which the urine contained no sugar at the time the examination was made, and it was conceivable that such cases might be passed by an examiner. An applicant could not be rejected on account of diabetes when an examination, made in the ordinary way, did not detect the presence of sugar. He knew of no way of making a diagnosis between glycosuria and diabetes mellitus.

He was in the habit of disregarding percentages entirely, and always insisted that the number of grains or grammes in twenty-four hours should be ascertained. The total solids could be readily obtained with sufficient accuracy, and in true diabetes the amount was always above 1,000 grains. In diabetes there is an excess of urea, while in

glycosuria the urea is not excessive. In life insurance examinations it was a good plan to keep the applicant for one hour, requesting him to pass his urine, at the beginning and end of this time. From the specimens thus obtained the amount passed in twenty-four hours could be estimated. The blood-staining tests for diabetes referred to had not come into general use, and the latest authorities had declared that they have no specific value. As to the most satisfactory method of detecting sugar in the urine, he could not agree that this was to be found in the fermentation test, for the reason that when no sugar was present, turpentine and other agents would ferment with yeast. No test was infallible, and it was therefore advisable to make use of several tests, especially in all doubtful cases. Personally he always employed three tests, namely, the bismuth, the indigo-carmine, and Trommer's, or Fehling's (with glycerine).

In order that a test should be entirely satisfactory it was requisite that preliminary testing should be resorted to. Creatinin was the substance most likely to interfere with the sugar test, and Allen's method was the one he was in the habit of using.

DR. CHAPIN said he should like to make an inquiry as to the significance of the presence in the urine of albumin in connection with sugar. He had met with a number of such cases. One of them was seen four years ago with a well-known consultant, who expressed the opinion that this conjunction was of fatal augury. Yet the patient in question was still living, and was at the present time in fairly good health.

DR. A. H. SMITH spoke of the remarkable frequency of diabetes among locomotive engineers, in whom, he had ascertained, the proportion of those affected with the disease was nearly five times as great as in the general average of individuals; and said that this was apparently due to the constant mental strain to which this class of men was subjected. In the same way the disease was very frequently met with among bank and railroad presidents and others in positions of similar responsibility. In the treatment of diabetes he thought one very important point was to relieve the patient of anxiety as much as possible and to divert his attention from his ailment.

DR. CROOK was inclined to attribute more importance to the rôle of the nervous system in the production of diabetes than had been admitted in the present discussion.

DR. STARK said, in reply to Dr. Chapin's inquiry, that in at least from one-fourth to one-third of all cases of diabetes some albumin was present, and that, as a rule, it had no special significance.

DR. MAYER said that the statistics in regard to the disease were more or less unsatisfactory. Many diabetics with phthisis entirely lost their sugar, and hence in the report of their deaths there might be no mention of diabetes. He did not believe that albuminuria was quite as common as Dr. Stark had represented; but when albuminuria was present in quantity it was quite a serious matter.

DR. BARTLEY said he had generally found that albumin appears late in the course of the disease, unless there had been some kidney trouble previous to the glycosuria. He always regarded it as indicating overwork, and a serious matter.

Recent Literature.

The Students' Manual of Venereal Diseases. By F. R. STURGIS, M.D., sometime Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York; formerly one of the Visiting Surgeons to Charity Hospital, B. I., Dept. of Venereal; Member of the American Association of Genito-Urinary Surgeons, etc. Seventh edition. Revised and in part rewritten. By F. R. STURGIS, M.D., and FOLLEN CABOT, M.D., Instructor in Genito-Urinary and Venereal Diseases in the Cornell University Medical College; Genito-Urinary Surgeon to Bellevue Hospital, Out-patient's Department; Visiting Dermatologist to the New York City (Charity) Hospital; Lecturer on Venereal and Genito-Urinary Diseases in the University of Vermont. Philadelphia: P. Blakiston's Son & Co. 1901.

The first edition of this book appeared about twenty years ago. Since that time, although a number of similar manuals have been published, this one has exhausted six editions, and now the seventh edition appears, well revised, attractively printed and enlarged to 205 pages with a sufficiently good index. The book is divided into twelve chapters, two of which are devoted to a consideration of chancroid, seven to syphilis, and three to gonorrhea, as it manifests itself in both sexes. The book is what it represents itself to be —a manual for students—and considers the three venereal diseases in a condensed and almost schematic way, avoiding the discussion of all mooted questions. Medical students will doubtless receive this edition with the same favor which they accorded the others, but for the profession at large the book has little interest.

A Textbook of Diseases of the Nose and Throat. By D. BRADEN KYLE, M.D., Clinical Professor of Laryngology and Rhinology, Jefferson Medical College, etc. Second edition Philadelphia: W. B. Saunders & Co. 1900.

This does not differ from the first edition, which was reviewed in these columns a few months ago. The early appearance of a second edition shows that there are many who have found the book satisfactory.

BILL PROVIDING DISSECTING MATERIAL FOR BOSTON INSTITUTE OF OSTEOPATHY. — It is reported that a bill permitting the Boston Institute of Osteopathy to receive bodies for dissection has passed the State Senate by a vote of 17 to 10.

THE BOSTON

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RESTRICTIVE MEDICAL LEGISLATION.

A matter which is likely to excite more and more interest and also to involve increasing difficulties is the rôle of the law in matters relating to health. As our knowledge of disease and its prophylaxis has grown, the tendency has been to enforce by law what experience has shown is for the good of the public health. This is particularly true of infectious and contagious diseases, in which our knowledge approaches nearest to certainty. There is now very little objection made on the part of people of intelligence in aiding Boards of Health and the authorities in discovering and reporting cases of disease of this type. This is wholly a matter of education, based on knowledge which any man of ordinary intelligence has no difficulty whatever in verifying. It is only among fanatics and extremists that systematic opposition is now made to regulations which a few years ago were generally looked on with suspicion. Inasmuch as the design of such laws is to protect the public, it is clear that the people's intelligent sympathy and co-operation must be enlisted before any material progress may be made. Compulsory vaccination has been found much more difficult of enforcement, simply because the people who must undergo the operation are not universally convinced of its efficiency. The arguments advanced in its favor, which are conclusive to the physician, do not appeal to the laity, as a body, with the perfectly inevitable result that the regulation is evaded, and the passage of laws rendered difficult and at times impossible. Another example in which still less progress has been made, has been the attempted prevention by law in certain western states of the residence of tuberculous persons within their borders, who have gone there in search of health. This legislation, so far as we know, has wholly failed. It could not be tolerated for any length of time either by the people or by the more enlightened physicians, either on moral or hygienic grounds.

By far the most extraordinary bit of legislation that has recently come to our notice is an apparently serious attempt in Minnesota to check the growth of mental disease by the enactment of a law making it illegal to marry without a physician's certificate of the soundness of mind of the contracting persons and of their parents and families before them. That such a law, if passed, will sooner or later meet with the opposition and defeat it deserves is unquestioned. In the present absolutely rudimentary state of our knowledge of this vague field of medicine, it is perfectly clear that the decision of the fitness of persons to marry in individual cases cannot be determined by a physician or any number of physicians with the slightest approach to justice. We are laboriously learning a little of the etiology of mental affections; the bugbear of heredity, though still sufficiently in evidence, is being subordinated as it has been in so many other affections, to the results of accurate study. The influence of infections, of overwork, of intoxications, of chronic disease of other organs, and many other agencies are being taken into account, with the result that some glimmering of light is being thrown into the dark places. It needs no detailed argument to realize that we are very far removed from a knowledge which will permit of dogmatism in any given case, especially when the decision involves a matter of such vital social concern.

After writing somewhat tentatively of the proposed law, the *Medical News* in a recent editorial says:

> If there were any way of shortening the effect of time and presenting human experience to individuals in a rapid series of vivid consecutive pictures of cause and effect, the people would be the first to call out for laws to protect them. No one questions the laws that prevent leprous, cholera and plague patients from entering our communities and mingling with the people, because the fatal consequences follow so quickly that the people learn their object lesson with revolting horror. But could they see in as many days, as it takes years, the development of insanity, the slow, pitiful suffering of the unfortunates and the horror and anxiety and heart-break of their friends in the cases that spring with the regularity of statistics, in the children and grandchildren and great-grandchildren of a person who has insanity in his family, if these could be presented to the people as vividly as the physician sees them, there could be no more telling object lesson, and one would as readily share his marriage-bed with a leper or a plague patient as with a person directly tainted with insanity.

This is neither scientific nor cogent argument. To contrast the question at issue with leprosy, cholera and plague, should not influence a sober-minded person in the least, and to make such comparisons surely does not advance the cause inasmuch as the conditions are not comparable. The

Philadelphia Medical Journal commenting on the same subject writes as follows:

This new and preposterous law would make it illegal to marry without a physician's certificate as to the mental soundness of the contracting parties as well as of the families of both of them. It is difficult to know where to begin to criticise such a law. The crusade against cigarettes is as the wisdom of Solon compared with it. We do not stop for a moment to condemn it on ethical and humane grounds; it condemns itself there. To say that any person who had had a parent, a grandparent, or a brother or sister, the victim at some time of an attack of insanity, or epilepsy, should be debarred from marriage by the certificate of a physician, is too wantonly barbarous and too crudely unscientific to need to be criticised at all. We simply point to the utter impracticability of such a law on the ground that the proof of insanity in a family is the hardest to establish and the easiest to conceal of any kind of proof. All psychiatrists know this from almost daily experience. Such a law apparently places the happiness of two individuals for life on the scientific acumen and psychiatrical skill of the average practitioner of medicine in Minnesota, or leaves the law itself to die a natural death from the inability or unwillingness of a doctor to step in and forbid the banns in the case of some young man or young woman whose mother may have had puerperal insanity, or whose grandfather may have had senile dementia, or whose wayward brother may have just recently died of general paresis. The general sense of mankind will condemn such laws as it has condemned them since the time of the Spartans.

For our own part we are convinced that such a law is neither wise nor just nor capable of successful enactment. The problem is far too involved to be treated in this off-hand manner. Absolutely desirable as it is to improve the human stock by every legitimate means, we should not for a moment forget that far too much of late has been said of degeneracy and far too little of the possibility of regeneracy, and also that in this matter beyond all others the education of the masses must play a leading part in the eradication of the weak, and the perpetuation of the strong. Legislation may, for the present, far better devote itself to more practicable problems of health, of which there are enough and to spare.

THE EPIDEMIC OF TYPHOID FEVER AT NEW HAVEN, CONN.

WE are told so often that typhoid fever is a preventable disease that we had almost come to regard the statement as a fact. Undoubtedly it is preventable, provided only the acknowledged precautions are adopted by everyone at all times to prevent its dissemination. As a matter of experience, however, this consummation is hardly to be anticipated until human nature has attained a degree of perfection of which it now falls far short. The laity must, somehow or other, be trained to a realization of the possible consequences of their carelessness in neglecting the requirements of sanitation. With the most scrupulous care accidents may no doubt happen, but this should be an incentive to renewed precaution rather than to increased carelessness.

New Haven is now the centre of a very considerable epidemic of typhoid, the source of which has been discovered, but too late to prevent the appearance of several hundred cases of the disease. It is also of interest that the disease has found its victims in one of the better residence portions of the city, in the immediate neighborhood of the Yale University buildings. Fortunately the students have, as yet, been practically free from infection, said to be due to the fact that they are not accustomed to drink the city water. It is, however, natural that parents should be solicitous under the circumstances regarding the return of their sons to college at the opening of the spring term. Naturally precautions have been taken, and notices posted, warning the students against drinking city water unless boiled, and also, it is said, against eating uncooked vegetables. No doubt such precautions will prove efficacious, but the fact remains that a very great menace to health will exist for a considerable time, with so widespread an epidemic as this appears to be.

We have no reason to suppose that the New Haven Board of Health has been in any way deficient in its duty, nor have we any authoritative knowledge as to where the blame lies. But that some carelessness has existed somewhere, which might have been averted is self-evident, and it is at least to be hoped and expected, that a similar accident will not soon happen again. Each unfortunate experience of this sort brings with it the consolation, small though it may be, that the knowledge gained may be put to practical use by an increasingly rigid prophylaxis in the future.

THE PROPOSED BACK BAY WATER PARK AND THE HEALTH OF BOSTON.

MALARIA, like various other diseases the fear of which has been proportionate to our ignorance of their cause, is likely to be regarded with much greater equanimity in the future than it has been in the past. Owing to the investigations of the last few years, we are now in a position to say with almost complete assurance under what conditions it will appear. The proposition to improve the Charles River basin by constructing a collapsible dam has met with a certain opposition from various sources, and among others from a few persons who have regarded such a collection of water, uninfluenced by the tides, as a menace to the health of the city, and particu-

larly of the Back Bay region, owing to the probability of the introduction of malaria. However much weight this argument may have had several years ago, it has completely lost its force since the discovery that malaria depends for its dissemination upon the presence and activity of a certain species of mosquito. In the recently promulgated pamphlet sent to various citizens of Boston advocating the consideration of a water park, was an appended statement by Dr. Richard C. Cabot, in which, no doubt after a mature consideration of the question, he states his belief that the malarial mosquito cannot breed in such a basin as the one proposed would be, and that, therefore, malaria will not be introduced by the suggested improvement. If this be the fact, and there can be no doubt that it is a matter which, with our present knowledge, an expert may definitely decide, the case against the water park falls so far as the question of public health is concerned. Other arguments against the proposition there may be; they do not concern us here, but of this we may be practically certain, that the danger from malaria, about which so much has been said, does not exist.

This is unquestionably a most important point to establish. Were the other alternative likely or possible, we can easily see in it an argument of much weight against the suggested improvement. As the matter now stands, however, the unadvisability of the park must rest on totally different grounds than those of public health.

MEDICAL NOTES.

The St. Paul Meeting of the American Medical Association and Yellowstone Park. — Arrangements have been completed for an excursion of the members of the American Medical Association to Yellowstone Park at the coming meeting. The committee of arrangements has succeeded in having the park opened a week earlier than usual in order to accommodate the Association. A special train will be run from St. Paul to the Yellowstone Park. Further announcements will be made later.

Leprosy on Teneriffe Island. — The existence of about 200 lepers on the island of Teneriffe, Canary Islands, has been officially reported at Washington by the United States Consul. At Santa Cruz de Teneriffe, the capital, there are 22 lepers, 15 of whom are men, and there are also some children. There are in addition living at the same place about 200 people. Officially it is not recognized that leprosy exists on these islands.

Officers of Pennsylvania Society for the Prevention of Tuberculosis. — At the annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis held on April 10, 1901, at the Academy of Natural Sciences, Logan Square, Philadelphia, Dr. Guy Hinsdale was elected president, and Alex. Heron Davisson, secretary. Thirty-one thousand copies of the society's publications were issued in the past year.

Increased Session of New Orleans Polyclinic. — The session of the New Orleans Polyclinic will be continued until May 31st instead of May 11th as previously announced.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 17, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 48, scarlatina 17, measles 85, typhoid fever 9.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending April 13th was 234, as against 269 the corresponding week last year, showing a decrease of 35 deaths, and making the death rate for the week 21.7. The deaths from consumption were 33, pneumonia 38, whooping cough 1, heart disease 25, bronchitis 9, marasmus 2. There were 13 deaths from violent causes. The number of children who died under one year was 36; under five years 57. Persons more than sixty years 52; deaths in public institutions 63.

Board of Health Police. — Two policemen have been assigned to assist the Board of Health in maintaining cleanliness and in taking care of persons attacked by contagious diseases. The Board of Health has always obtained such assistance as it needed from the Police Department, by making a request for it each time. The present arrangement will do away with this formality.

Meeting of Carney Hospital Alumni. — The thirteenth annual dinner of the Carney Hospital Alumni Association was held April 11th in Boston. Dr. M. E. Keen, of Manchester, N. H., presided, and the following officers were elected for the ensuing year: John M. Hastings, M.D., president; J. Shepard May, M.D., vice-president; E. P. Hatch, M.D., secretary and treasurer.

A Centenarian. — Michael Foley, said to have been the oldest man in Connecticut, has recently died in Versailles at the reputed age of one hundred and one. Up to a few weeks ago he is said to have been able to do farm work.

Typhoid Fever in New Haven, Conn. — Up to April 15th, the total number of reported cases of typhoid fever in New Haven was 350.

NEW YORK.

RESPONSIBILITY FOR ELEVATOR ACCIDENTS. — Another decision recently given by the Court of Appeals, in which it differs from and overrules the Appellate Division, is one in reference to the extent of the responsibility of owners of office buildings for elevator accidents. About a year ago the Appellate Division unanimously affirmed judgment given in favor of the administratrix of a tenant in an office building who had brought suit for damages for the death of her husband by an accident of this character. The trial judge charged the jury that the owner was bound to use the utmost care as to any defect which might be liable to occasion great danger or loss of life, and he was in that respect subject to the same rule that applied to a railroad company in regard to its roadbed, engines and similar equipment. The Court of Appeals, on appeal, now holds that the owner of the building, in maintaining and operating a passenger elevator, is bound to use a degree of care which is reasonable in view of the dangerous character of the service. He is not, however, bound to exercise the utmost human care and foresight to guard against danger. The latter rule, which is applicable to railroads, where, for a consideration, there is a contract to carry safely, does not apply to the management of an elevator in an office building. The prevailing opinion, which was by Judge Cullen, was concurred in by Judges Vann, Werner and Gray; Judges Bartlett and Martin dissented. "In these days of lofty buildings," Judge Bartlett said, "and the annual transportation of millions of passengers in elevators by interested owners, who could not otherwise rent their property, public policy requires them to exercise the same degree of care as is imposed on common carriers."

DECISION REGARDING NEGLIGENCE OF RAILROADS. — A decision has been rendered by the Court of Appeals, reversing unanimous decisions of the Appellate Division of the Supreme Court, which settles some mooted questions in reference to contributory negligence in the case of persons injured or killed while attempting to cross railroad tracks in cities. The details of the case on trial are somewhat complicated. Judge Vann, who gives the unanimous opinion, holds that a railroad company which runs a locomotive rapidly in the night upon a public street in a populous city, crossing other streets at grade, with no gate or flagman to protect the public, and without taking any precaution to warn by bell, whistle, or otherwise, except by means of its headlight, may properly be found guilty of neglecting its duty to operate its cars with the care and caution required by the circumstances.

MORTALITY STATISTICS IN MARCH. — The general mortality in March represented an annual death rate of 21.39, against 25.56 in February. In March of last year, the death rate was much higher; the figure then being 25.56. In March of the present year, as compared with February, the weekly average of deaths from diphtheria and croup increased from 40.75 to 52; from scarlet fever, from 27 to 34.75; from pneumonia, from 158.5 to 201; from phthisis, from 173.5 to 179.75; from bronchitis, from 41.5 to 49.5; from cancer, from 44.25 to 48.5, and from diseases of the urinary system, from 123.75 to 129.25. On the other hand, the weekly average of deaths from influenza decreased from 51.75 to 27; while the mortality from measles, whooping cough and typhoid fever (very low in all these affections) continued about the same.

SUIT AGAINST A HOSPITAL PHYSICIAN. — A suit is now in the courts which is of much interest to the profession. Peter Ryan, a former charity patient in the City Hospital on Blackwell's Island, has brought an action for $25,000 against Dr. Edward Sprague Peck, one of the most eminent ophthalmologists in New York and a surgeon to the hospital, for the loss of his sight through an operation for cataract. The city, while not made a party to the suit, is defending the action on the ground that Dr. Peck was in its service and received no compensation. It is claimed by the defence that the loss of sight was due to the patient's own carelessness.

A GIFT TO THE LOOMIS SANITARIUM. — J. Pierpont Morgan has purchased, for $40,000, the plant of the Liberty Electric Light and Power Company, which furnishes the electric light for the village of Liberty, Sullivan County, and presented it to the Loomis Sanitarium for Consumptives, situated at that place. The gift is regarded of much importance to the sanitarium, as it will not only greatly reduce its expenses for lighting, but also provide it with a permanent source of considerable income. The administration building, costing $80,000, was a previous gift of Mr. Morgan, who is one of the incorporators and trustees of the institution.

INFLUENCE OF SMALLPOX ON INFLUENZA. — Dr. F. C. Gram, Registrar of the Buffalo Health Department, announces as the result of recent observations, that smallpox exerts an influence on influenza apparently not hitherto noticed. The health authorities have just concluded a general vaccination, the work being done at a time when the city was suffering from a very severe epidemic of influenza. The reports show that simultaneously with the appearance of manifestations of vaccinia in influenza patients the symptoms of the latter disease disappeared.

A NEW CHRISTIAN SCIENCE CHURCH AND ACCESSORIES.—The Christian Scientists who recently dedicated an expensive new building on Central Park, West (the first "church" of the sect to be erected in the city), are not lacking in an eye to business. Among its appointments are a considerable number of consultation rooms, with private entrances from the street, which are to be rented out to "practitioners" for office work. The first and second "readers," Mrs. Lathrop and her son, are said to be given their offices rent free.

SMALLPOX IN NEW YORK.—Smallpox is not decreasing in New York. In November 35 cases were reported; in December, 68; in January, 78; in February, 142 and in March, 194. In January the average number of cases per day was less than three; in February it was four; in March, six, and in the first eleven days of April, seven. While, however, there were more cases in March than in February, the weekly average of deaths from the disease was exactly the same, namely, eight.

AMENDMENT OF PUBLIC HEALTH LAW REGARDING DENTAL SOCIETIES.—Governor Odell has signed a bill amending the public health law relative to the incorporation of dental societies permitting men who studied under private preceptors to take the state examinations in dentistry, provided their certificate of study was filed prior to July, 1895, and requiring dental students to pursue a three years' course in a registered dental school.

RE-ELECTION OF DR. ENOCH V. STODDARD.—At the meeting of the State Board of Charities held at Albany on April 10th, Dr. Enoch V. Stoddard, of Rochester, was unanimously re-elected vice-president for the eighth consecutive time.

A SUMMER HOME FOR NURSES.—The property known as the Grace Church Fresh Air Home, at Far Rockaway, has been purchased by the wife of Dr. Walter B. James for a summer home for trained nurses.

SMALLPOX IN ALBANY.—A serious outbreak of smallpox is reported at the Lathrop Memorial Home, Albany, a charitable institution situated in a populous residence district of the city.

BILLS OF ROOSEVELT TENEMENT HOUSE COMMISSION.

AFTER a public hearing on the measures, on April 10th, Governor Odell, on April 12th, signed the four bills, recently passed by the Legislature, which were framed by the Roosevelt Tenement House Commission. In doing so he filed with the bill providing for the manner of the construction of tenement houses a memorandum recommending some supplemental legislation. The principal reforms that the new laws will bring about will be in brief, as stated by Mr. De Forest, Chairman of the Commission, more air and light, the doing away with dark interior rooms and cellar rooms, proper sanitary appliances for every family, proper protection against fire, and a proper enforcement of the laws regarding tenement houses. This will be accomplished by the new Tenement House Department provided for by one of the bills. The head of this, who is to be called the Tenement House Commissioner, will be held personally responsible for any violations of the laws. He is to be appointed by the mayor and to receive an annual salary of $7,500. He will have power to appoint and remove at will one or more Deputy Commissioners, at an annual salary not to exceed $5,000, and will also have power to appoint all the employees in the department and to fix their salaries. In the department will be included a building bureau, an inspection bureau, and a bureau of records, and the Commissioner will have power to form other bureaus, if deemed advisable. The provisions against using apartments in tenement houses for immoral purposes are very severe.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 6, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York	3,437,202	1,386	419	23.32	16.38	3.18	2.88	3.46
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	177	48	21.47	18.64	—	1.80	1.80
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	113	41	18.59	21.24	—	1.77	2.65
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	53	7	26.46	18.90	—	—	5.67
Boston	560,892	211	52	26.54	18.00	4.26	1.90	1.90
Worcester	118,421	—	—	—	—	—	—	—
Fall River	104,863	—	—	—	—	—	—	—
Lowell	94,969	47	18	12.78	29.82	—	2.13	2.13
Cambridge	91,886	28	7	11.55	34.65	—	—	3.85
Lynn	68,513	18	2	16.65	16.65	—	—	5.55
Lawrence	62,559	15	6	19.98	19.98	—	—	—
New Bedford	62,442	21	10	23.80	19.04	14.28	—	4.76
Springfield	62,059	24	7	8.34	16.68	4.78	—	—
Somerville	61,643	12	—	16.66	50.00	—	8.33	—
Holyoke	45,712	12	3	41.65	8.33	—	—	16.66
Brockton	40,063	9	1	33.33	44.45	11.10	—	—
Haverhill	37,175	12	4	25.00	25.00	—	—	8.33
Salem	35,956	15	4	13.33	13.33	—	—	—
Chelsea	34,072	11	1	9.09	—	—	—	—
Malden	33,664	6	1	16.67	—	—	—	16.67
Newton	33,587	9	2	33.33	22.22	—	11.10	—
Fitchburg	31,531	7	5	14.30	—	—	14.30	—
Taunton	31,036	—	—	—	—	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Everett	24,336	10	3	10.00	20.00	—	—	10.00
North Adams	24,200	10	4	20.00	10.00	—	—	—
Quincy	23,899	8	3	25.00	12.50	—	—	—
Waltham	23,481	3	1	—	33.33	—	—	—
Pittsfield	21,766	—	9	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	9	5	22.22	11.10	—	—	—
Medford	18,244	5	3	60.00	—	40.00	—	20.00
Newburyport	14,478	3	—	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,263; under five years of age 677; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 514, acute lung diseases 403, consumption 248, diphtheria and croup 72, diarrheal diseases 53, scarlet fever 61, influenza 7, ty-

phoid fever 22, whooping cough 10, measles 8, cerebro-spinal meningitis 5, smallpox, 8.

From whooping cough, New York, 3, Pittsburg, 3, Boston, Lowell, Quincy and Chicopee, 1 each. From cerebro-spinal meningitis, New York, 3, Baltimore, 1, and Salem, 1. From scarlet fever, New York, 44, Boston, 9, New Bedford, 3, Medford, 2, Springfield, Brockton and Hyde Park, 1 each. From typhoid fever, New York, 11, Pittsburg, 4, Baltimore, 3, Lowell, Lawrence, Haverhill and Clinton, 1 each. From measles, New York, 6, Boston 2. From smallpox, New York, 8.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending March 23d, the death rate was 18.4. Deaths reported, 4,162; acute diseases of the respiratory organs (London), 332, whooping cough 122, diphtheria 53, measles 93, fever, 22, diarrhœa, 38, scarlet fever, 27.

The death rate ranged from 10.7, in Halifax, to 23.6, in Liverpool; Birkenhead, 20.1, Birmingham, 19.3, Blackburn, 22.1, Bolton, 20.4, Bradford, 15.9, Brighton, 12.9, Bristol, 21.2, Burnley, 14.7, Cardiff, 14.4, Croydon, 15.5, Derby, 17.1, Gateshead, 21.4, Huddersfield, 22.7, Hull, 21.2,, Leeds, 19.4, Leicester, 13.5, London, 17.8, Manchester, 23.4, Newcastle-on-Tyne, 19.4, Norwich, 18.8, Nottingham, 15.7, Oldham, 13.0, Plymouth, 17.1, Portsmouth, 25.7, Preston, 23.0, Salford, 20.8, Sheffield, 21.2, Sunderland, 18.9, Swansea, 21.9, West Ham, 11.4, Wolverhampton, 12.1.

METEOROLOGICAL RECORD.

For the week ending April 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...31	29.83	37	44	30	57	64	60	N.W.	N.W.	23	17	F.	F.	O.
M...1	30.76	42	50	33	63	76	70	N.W.	N.	16	3	O.	F.	T.
T...2	30.10	40	43	38	96	92	94	N.E.	S.E.	9	9	R.	O.	T.
W..3	29.67	40	42	37	96	—	98	E.	E.	13	30	O.	R.	.11
T....4	29.56	40	42	39	—	96	98	N.E.	N.E.	8	7	G.	G.	.14
F...5	29.74	42	45	38	98	92	94	N.	N.	8	5	O.	O.	T.
S....6	29.74	46	53	40	89	—	94	S.W.	E.	6	15	O.	R.	.14
☞	29.73		46	36			87							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, April 24, 1901, at 8 P.M.

Papers: Dr. F. B. Lund, "A Case of Melanotic Sarcoma Simulating Urethal Caruncle"; Dr. C. G. Cumston, "Lesions of the Bladder During Abdominal and Vaginal Hysterectomy."

Discussion by Drs. Stevens, Ryder, Kingman, Garceau, Coggeshall, Twombly, Hare and Breck.

W. H. GRANT, Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES. — The next regular meeting of this Association will be held at the Hotel Ryan, St. Paul, Minn., June 3, 1901.

RESIGNATION.

DR. AUGUSTUS P. CLARKE, dean and professor of gynecology at the College of Physicians and Surgeons since 1893, has resigned.

RECENT DEATHS.

DR. WILLIAM JAY YOUMANS, for many years the editor of the *Popular Science Monthly*, died at his home in Mount Vernon, Westchester County, New York, on April 11th, at the age of sixty-two. His death was due to typhoid fever. Dr. Youmans was born near Saratoga on October 14, 1838. He studied chemistry at Columbia College, New York, and at the Sheffield Scientific School of Yale, and was graduated from the Medical Department of the University of the City of New York in 1865. In 1872, in connection with his brother, Professor Edward Livingston Youmans, of Columbia, he established the *Popular Science Monthly*, published by the Appletons, and after his brother's death was its sole editor until a year ago, when the publishers became involved in financial difficulties. Two of his children are physicians.

BOOKS AND PAMPHLETS RECEIVED.

An Extraordinary Case of Aortic Aneurysm. By Carl Beck, M.D., of New York. Reprint. Illustrated. 1899.

A New Operation for Inguinal Hernia. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1899.

On Suspending the Uterus on the Round Ligaments. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Clinical Study of Thyroid Extract. By William F. Drewry, M.D., and J. M. Henderson, M.D. Reprint. 1900.

Fatty Degeneration of the Heart. By Thomas E. Satterthwaite, M.D., of New York. Reprint. 1901.

Annual Report of the Board of Health of the City of Cambridge, Mass. Boston: J. A. Cummings Printing Co. 1900.

Forty-Fifth Annual Announcement. Portland School for Medical Instruction. Portland: Stephen Berry. 1901.

A Further Study of the Unit System of Laboratory Construction. By Charles S. Minot. Illustrated. Reprint. 1901.

A Text-Book of Gynecology. Edited by Charles A. L. Reed, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1901.

Massage in Raynaud's Disease (Symmetrical Gangrene). By Douglas Graham, M.D., of Boston, Massachusetts. Reprint. 1901.

Some Remarks on the Present Status of the Physician in the United States. By Emil Amberg, M.D., Detroit, Michigan. Reprint. 1901.

The Practice of Medicine and Surgery in the Higher Altitudes. By R. Harvey Reed M.D., Rock Springs, Wyoming. Reprint.

Fifteenth Report of the Lunacy Commission to his Excellency the Governor of Maryland. Baltimore: The Sun Book and Job Printing Office. 1901.

Laryngeal Phthisis or Consumption of the Throat. By Richard Lake, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Lectures on Nasal Obstruction. By A. Marmaduke Shield, M.B. (Camb.), F.R.C.S. (Engl.) Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The State Laws of Wyoming in Reference to Contagious Diseases. By R. Harvey Reed, M.D., University of Pennsylvania, Rock Springs, Wyoming. Reprint. 1900.

A Case of Transposed Viscera, with Cholelithiasis, Relieved by a Left-Sided Cholecystotomy. By Carl Beck. M.D., New York. Illustrated. Reprint. 1899.

Medical Legislation: Its Relations to the Laity and the Medical Profession. By R. Harvey Reed, M.D., University of Pennsylvania, Rock Springs, Wyoming. Reprint. 1900.

Memoranda on Poisons. By Thomas Hawkes Tanner, M.D., F.L.S. Eighth revised edition. By Henry Leffman, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1901.

The Roentgen Rays in Spina Bifida. By Carl Beck, M.D., Professor of Surgery in the New York School of Clinical Medicine: Surgeon to St. Mark's Hospital, etc. Reprint. 1898.

The Radical Treatment of Carbuncle. By Carl Beck, M.D., Professor of Surgery New York School of Clinical Medicine; Surgeon to St. Mark's Hospital, etc. Reprint. 1898.

Contribution to the Surgery of Multilocular Renal Cyst. By Carl Beck, M.D., of New York, Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik. Reprint. Illustrated. 1901.

Twenty-Fifth Annual Report of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the Year Ending October 31, 1900. Illustrated. Trenton: MacCrellish & Quigley, State Printers. 1900.

Original Articles.

REMARKS ON ANESTHESIA — GENERAL, LOCAL AND SPINAL.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE introduction of spinal cocainization excites renewed interest in the general subject of anesthesia. Every surgeon of experience deplores the occasional accidents and disadvantages of general anesthesia, and would welcome any method which, while avoiding them, adds no other and perhaps greater risks. In attending the great clinics of this country I have been impressed by the care and anxiety of the surgeon in regard to the anesthesia of his patient. This extreme solicitude has been expressed perhaps more by those of wide than by those of limited experience. The reason is not far to seek. Few men can hope to spend many years without meeting some of the accidents of anesthesia. Immunity from them for a few months or years, perhaps for many years, may beget a false security and encourage careless methods. In most hospital clinics the anesthetic is given by the youngest interne, and his administration of it, supervised habitually and almost unconsciously by the surgeon himself, is ordinarily safe enough. When emergencies of operation arise, however, when every faculty of the surgeon is devoted to the operation itself, when, perhaps, the patient's condition is alarming, when therefore, especial care and experience in anesthesia are demanded, and when, more than ever, the surgeon should see that great caution is used; — at that time of all others the etherizer may be left to himself.

I recall an emergency of the most formidable nature which suddenly arose during an operation for hernia in a man of sixty. Something aroused my suspicions, and I repeatedly asked the etherizer if all was well. He said "Yes" every time. I finally left the operation to see for myself. The patient survived only by the merest chance after tracheotomy and prolonged efforts at clearing the trachea below the tube. Respiration was seriously impeded in the throat; then completely obstructed there; no effort of mine could give access of air to the lungs. Tracheotomy gave only temporary relief: the trouble was lower down. Finally, with great difficulty, he was brought to life, and the operation was completed.

In private practice, especially in these abdominal emergencies in which great caution is necessary, the anesthetic may be given by a nurse, by a member of the family, or by a physician who perhaps has had little experience and who does not wish to take the responsibility of it, but is obliged to do so. Doubtless under these circumstances the patient is really safer under anesthesia than when an overconfident physician gives it, for the surgeon always keeps one eye on his patient and one on his operation. Indeed, so deeply is the surgeon impressed by the responsibilites of the anesthetic, that he can hardly hope ever to yield even to a professional anesthetist that full confidence which will enable him to devote his whole attention to the operation. It is but natural that he should feel so, for upon him, and him alone, will fall the responsibility of death from the anesthetic.

It is not my intention to go into the dangers of etherization, — for by general anesthesia I mean etherization. Suffice it to say that I have never had or seen a death from ether itself — a death, for example, under anesthesia for a trivial operation. I recall one death on the table during operation, the case of a very stout woman, with general peritonitis resulting from rupture of the uterus. The patient strangled in her own vomit, in spite of the surgeon's efforts to clear the trachea. Another patient, years ago, a young girl with empyema, died suddenly just as the anesthesia was complete. The whole left pleural cavity was filled with pus, the left lung being compressed into a small mass no larger than the hand. I was to assist in this operation. A patient of my own, seriously injured by an explosion of dynamite, died soon after the repair of a lacerated hand. The medical examiner made a careful examination, and reported the death to be owing to other causes than the anesthetic.

These deaths — the two coincident with the administration of ether, and the third from strangulation in a patient too feeble to swallow or to clear her throat — are the only ones which I have seen or had in a very large number of etherizations. They were all cases of serious disease or extensive injury, and death could not be fairly attributed to simple anesthesia.

There have, perhaps, been deaths due indirectly to ether, but their number is extremely small. Those owing to suppression of urine and to inhalation pneumonia are the only ones in which ether may have been an important factor. It is not clear that ether alone was responsible for them. In genito-urinary cases, particularly, suppression of urine may occur, and does occur, as the direct result of the operation itself, especially in cases of ascending infection. When a patient dies with suppression of urine after a double ovariotomy and a combined vaginal and abdominal hysterectomy, or after a cholecystotomy, or after a nephrectomy, it is an unwarrantable assumption that death was owing to the ether and not to the operation. Such an assumption is to accept the lesser, not the greater constitutional disturbance, and is against common sense. A death from pneumonia after ether is always attributed to the anesthetic, though the vast majority of pneumonias occur spontaneously. It seems absurd to say that a pneumonia developing three weeks after operation is owing to the anesthetic. Only pneumonia or bronchitis beginning directly after recovery from the anesthetic may fairly be said to be owing to that anesthetic.

The dangers of etherization are, in my opinion, trivial. I believe that the subcutaneous use of cocaine, especially in extensive dissections, will be found to be much more hazardous. The safety of

[1] Read before the Obstetrical Society of Boston, December 18, 1900.

ether depends upon the individual. If he is carefully studied the chief dangers will be avoided, for contra-indications to the use of ether will have been discovered. Healthy subjects, well prepared, are not injured by etherization in a large enough ratio of cases to justify discussion. Most experienced surgeons probably can say with truth that they never have lost a patient after operation under complete anesthesia for hemorrhoids, urethral stricture, castration, ventral fixation, simple ovariotomy, appendicitis in the interval, minor amputations, amputations of the breast, dissections of the axilla, dissections of the neck, removal of fatty and other benign tumors, examinations for diagnosis, and the like. If surgeons have lost a case here and there, it has been from causes other than the anesthetic.

I was taught by Dr. Bigelow the principles of etherization, and I have always followed them. Chief among these principles was the importance of careful administration and of attention to the warnings of danger. I have come to regard etherization, carefully carried out by one who understands it, as without danger to healthy individuals. Accidents come from disregard of danger signals, and from overetherization — not from the intrinsic dangers of the drug carefully given. I have been annoyed to see the overconfidence, the carelessness and the ignorance with which ether is generally given — on the ground that it is perfectly safe. It is not safe when no care is deemed necessary; it is is as safe as anything can be in surgery when carefully and intelligently administered to healthy subjects. It has dangers inseparable from its use in certain conditions of habit, physique, disease and idiosyncrasy.

General anesthesia is undesirable under certain conditions; it is strongly contra-indicated under some. Under some its undesirability is simply a matter of dread on the part of the patient.

Local anesthesia may be desirable or imperative, according to the circumstances. When nothing in the patient's condition forbids general anesthesia, that method is preferable for major operations. For minor operations, the local injection of cocaine, or other local anesthetic, is perfectly satisfactory. Spinal anesthesia, or local anesthesia by subcutaneous injections over considerable areas, may be considered in patients who are willing to take the possible risk because of their abnormal dread of a general anesthetic. Few patients, however, would be willing to run an unknown and serious risk owing to dread of a known and safe method, were the facts of the case fairly presented to them. They can hardly be advised to submit to spinal cocainization by those who look upon that means as of doubtful safety — to say the least. If willing, in spite of possible dangers, to risk spinal cocainization for an imperative operation, they would seem to have a right to try it.

The only justification for the use of extensive local and of spinal anesthesia lies in diminished risk to the patient. There are enough conditions in which the risks of general anesthesia are great, to provide a wide field for anesthesia. The most important are the abdominal diseases or conditions which endanger the patient's life by regurgitations into the throat during profound anesthesia. This danger is a real one, and is present whenever the patient is unable to swallow or to clear his throat. I have seen many patients die in the natural course of the disease from sudden flooding of throat and air passages in advanced general peritonitis with great distention and full stomach, when they were too feeble to clear either the throat or the air passages. Such a termination of general peritonitis or of intestinal obstruction is not uncommon. To subject a feeble patient to complete unconsciousness when his stomach and upper intestines are distended with thin fluid contents, is to invite disaster. Even when he is in good strength, the dangers at this time are great. No operation can cause greater anxiety than that undertaken for general peritonitis and for intestinal obstructions generally. When it is remembered that a large proportion of acute abdominal cases are attended by distention, the importance of this point is evident. Even if the patient survives the operation, there is always danger of an inhalation pneumonia or of a bronchitis. Indeed, it is safe to say that most post-operative pneumonias are owing to regurgitation of stomach contents and contamination of the air passages.

A similar danger is always present when emergency operations are performed upon patients with full stomachs. Many of the hospital cases are of this class. Railroad accidents, gunshot wounds, stabs, and the like, may demand operation soon after a full meal. Many of the sudden deaths during operations are owing to the inhalation of masses of undigested food, large enough to plug completely the pharynx or the trachea. Several accidents of this kind have occurred in this community, and doubtless may have occurred without the truth being known. In some instances a patient, previously warned not to eat anything for at least six hours before operation, has been known to take food without the knowledge of either his family, nurse or surgeon. Such extreme care is necessary in general anesthesia under these circumstances that the employment of local or spinal would seem justifiable.

When the heart, lungs, or kidneys, are seriously diseased, the selection of an anesthetic may present great difficulties. Heart disease, for instance, is usually regarded — among the laity at least — as a contra-indication to general anesthesia. My own experience is quite the opposite. I have operated for strangulated hernia, for example, in a case of acute puerperal endocarditis in which the patient's pulse was 210. The operation was of course brief, but the convalescence was satisfactory. I have yet to see the least sign of danger in the complete anesthesia of patients with cardiac disease.

The chief anxieties, in etherization at least, have come from disease of the lungs. I once assisted, or was about to assist, at an operation for empyema, when the patient, nearly etherized, sud-

denly died. How much the ether had to do with this unfortunate end cannot be told. It was undoubtedly the exciting cause in this case. Yet it would be absurd to say that death would have resulted had both lungs been normal. Since this experience I have always used especial care in etherizing patients with empyema. In a few cases I have used chloroform instead of ether, though I am entirely unconvinced that chloroform has any advantages over ether. In several desperate cases I have injected cocaine into the intercostal spaces above and below a rib before resecting and draining. Some of the patients have been in the most serious condition, with the pulse ranging between 180 and 200, and the operation has been accomplished in less than two minutes. Even in these desperate cases, the anesthesia, whether general of local, has been well borne.

The chief anxiety in etherizations generally has always been from changes in the respiration. I am inclined to think that this anxiety is seldom justified by the facts — at least seldom justified by any unfavorable results. Doubtless the very fact that abnormal respiration is feared, and that when its slightest symptoms are observed the ether is taken off, explains the favorable issue. With increased experience, irregularities and abnormalities of respiration in one's practice become less and less frequent; they occur in the hands of the fresh interne and inexperienced etherizer. Twice during a recent service I was obliged to leave the operation and to resort to artificial respiration. Both patients were strong and healthy males, one of early youth and one of middle age. The operations were in themselves slight — one a circumcision, the other a sinus curettage. Regular respiration ceased in both until the patient became cyanotic. How long they would have gone without drawing a breath themselves cannot be said. The aspect was too alarming to allow one to satisfy his curiosity on that point, for the patients made not the least effort to breathe. Their faces were darkly cyanotic and the pupils widely dilated. The air passages were perfectly free. There was simply failure on the part of the respiratory centres to respond to the evident call for oxygen. The hearts were pumping vigorously. Under artificial respiration continued for a minute or two the patients began to breathe naturally. I am convinced that patients under such circumstances will themselves resume respiration, though I have never dared to put the question to the proof. This form of unnatural respiration is not infrequent in the early stages of anesthesia, when it is a symptom of little moment. Failure to breathe is the result of the enforced respiration so often ordered by the etherizer. In response to frequent commands of "Take a long, deep breath," the patient's blood gets overoxygenated, and he can go a long time without breathing. The etherizer need feel no anxiety from this form of abnormal respiration. By taking quickly say forty to sixty deep inspirations, the diver can stay under water for some time. I have, for instance, remained under water without discomfort for two minutes and ten seconds after thus overaerating the blood. This would seem to the surgeon an interminable period, if his patient should make no effort to breathe.

When the patient fails to breathe during complete anesthesia it is a different matter, and artificial respiration must be practised. It is fortunate — and in this fact lies the great safety of ether — that the patient, with healthy lungs at least, always responds to artificial respiration.

The dangers of regurgitation from a full stomach in intestinal obstruction and in general peritonitis, or in both diseases combined, cannot be met by washing out the stomach beforehand, because regurgitation from the upper intestine refills the stomach by the time etherization is complete. I regard this danger as excessive, and as a full justification for local anesthesia or spinal injections. Whatever the dangers of the latter method, they do not seem likely to be as great as the danger of complete unconsciousness.

Local anesthesia in advanced general peritonitis and obstruction — distention has worked well in the few cases in which I have tried it. I have, for instance, drained a general peritonitis through a median incision made under cocaine, and have continued the irrigation for hours afterwards. I have removed the appendix under the same anesthesia in an apparently hopeless general peritonitis. The patient, indeed, instead of dying in a few hours, as he would have done, perhaps, had ether been used, lived several days, and for many hours gave hope of eventual recovery. On the other hand, a girl, almost moribund with general peritonitis, supposed to be of appendicular origin, lived a month after drainage of the pancreas for an acute hemorrhagic pancreatitis. Her condition was so desperate that cocaine was proposed. Chloroform was used, however, and anesthesia was complete.

The dangers of profound anesthesia in these cases are hard to overestimate, and yet anesthesia profound enough to ensure against vomiting, seems safer than keeping the patient on the verge of unconsciousness, etherized too much for swallowing and clearing his trachea, but not enough to prevent vomiting. When a patient fills mouth, nose and throat with the thin black vomitus of general peritonitis, and when after swabbing out as thoroughly as possible, his respiration is wheezy, his color and pulse bad, he should be allowed to come out of the ether enough to swallow and to clear his throat, no matter at what stage the operation may be, for these symptoms mean impending death. Under such circumstances the dangers of spinal anesthesia, however uncertain they may be, are the immediate ones from the general absorption of cocaine and its local effects upon the spinal contents; and they are not to be compared in their possible grave effects, as far as is known, with those of profound general anesthesia.

Local anesthesia is to be preferred for all trivial operations in regions where it can be thoroughly applied. The dangers of subcutaneous injections seem slight, if care is exercised in the introduction of the anesthetic under the skin, and if a

dilute solution is used. I have followed this method in all minor surgery, and at all ages except infancy. I use a 1% solution under the skin, slowly injected through an area first anesthetized with ethyl chloride. I have yet to see the least unpleasant or alarming symptom. By trivial operations I mean the removal of small tumors, aspirations, amputations of fingers and toes, small plastics, and the like.

Local anesthesia for operations like appendectomy, the radical cure of hernia, excisions of elbow, amputations of arm or leg, seems to me far from advantageous as compared with ether. I have used local injections of 1% solutions of cocaine, in the radical cure of hernia, and in acute appendicitis (the case already mentioned). The dissection proceeded painlessly until the peritoneum was reached. In the hernia the outcry was so great when the sac was reached that I was obliged to use ether. In the appendectomy, manipulations of the appendix and the meso-appendix caused excessive pain. I completed the operation, nevertheless, without general anesthesia. Wide experience in extensive subcutaneous local anesthesia in the robust is necessary before it will seem as safe and satisfactory as general.

In very feeble patients the selection of method presents great difficulties. The effect of ether in some is beneficial, the pulse increasing in strength and diminishing in rate. As a rule simple weakness does not contra-indicate general anesthesia. It is rather in the stout, flabby patient, past middle life, that one meets with the accidents of general anesthesia — accidents during its administration and postoperative. Even upon such unfavorable subjects profound anesthesia in itself so rarely produces evil effects that the dangers, definite though they may be, are unlikely to be lessened by methods whose dangers are as yet unknown.

In acute febrile diseases, especially typhoid fever, pneumonia, pleurisy, pyemia and septicemia, malignant endocarditis, purulent pericarditis, and the like, it seems a question whether the dangers of general anesthesia will be avoided by local or by spinal cocainization. The use of these doubtful methods in operations of emergency — as all operations in the course of acute diseases must be — seems ultraradical, if not, with our present knowledge, unjustifiable.

There is a class of cases in which these new methods find a reasonable application, and that includes the patients who from previous experience are known to behave badly under general anesthesia.

Another class inviting disaster under general anesthesia comprise operations upon deep cervical phlegmons, tumors close to and adherent to the trachea, inflammations and growths involving or pressing upon the recurrent laryngeal nerves. The largest number of emergencies that I have seen during general anesthesia have been of this class. It includes also imperative operations upon the trachea and larynx, such as tracheotomy for respirations obstructed by acute or chronic diseases, by foreign bodies, and by the pressure of tumors.

The value of local anesthesia in these cases is great. I recall 3 cases of impending suffocation during etherization for deep cervical abscess. It was impossible to free the throat, and inspiration was absolutely shut off. The first case occurred in the service of the late Dr. Hodges, and was saved by tracheotomy. Two were in my own service at the Massachusetts General Hospital and were saved in the same way. The necks were brawny and infiltrated, the jaws could not be opened, respiration became more and more labored, and finally completely prevented. Guided by this experience, which was many years ago, I have never approached a similar case without extreme caution when a general anesthetic was to be used. Cocaine has always been used when possible.

In the removal of thyroid tumors the selection of an anesthetic is very important. Three desperate emergencies in this operation have come under my observation, though none were my own. The first two required tracheotomy through the tumor. In the third, a patient of Dr. C. B. Porter, cocaine was at first used, but etherization became necessary before the operation could be completed. The larynx became totally obstructed, and life was saved only by tracheotomy after a rapid and brilliant dissection through the tumor. The tumor, which was supposed to be malignant, proved benign, and the patient has been well ever since. In all operations for tumors involving larynx or trachea, or pressing upon these structures, for lesions involving the recurrent nerves, the greatest emergencies may very unexpectedly arise.

We are apt to forget, in making comparisons, that the dangers of general anesthesia have been demonstrated in almost countless cases. A danger which is regarded by many of us too great to justify the use of chloroform does not comprise, even in the most unfavorable statistics, more than 1 death in 500 cases; in ether, a much smaller ratio. Who can believe that spinal cocainization will present as small an immediate danger as the general anesthesia of chloroform, a danger which is to me, for instance, so great as to be prohibitory. Were I to feel that one patient a year would die under the anesthetic alone, perhaps from a trivial operation or from one of convenience rather than of necessity — for a lacerated cervix, for example, or for lipoma of the back, or even for a thorough examination — the burdens and responsibilities of surgery would be beyond endurance. No operation requiring general anesthesia would be approached with equanimity; every moment of the anesthesia would be one of torturing anxiety. When ether is carefully given there is no distressing anxiety as to the outcome; I feel that the patient is as safe as he can be. A feeling of confidence is shaken only when the anesthetic is in the hands of the careless and overconfident, or the patient is in such desperate conditions as I have described.

I cannot believe that either spinal or local cocainization, after fifty years of use as extensive and varied as that of ether, or even of chloroform, has been, will show a safety to be compared with them.

EXPERIENCE IN SEARCH OF A CURE FOR ASTHMA IN THE FAR SOUTHWEST; WITH OBSERVATIONS OF THE COMPARATIVE VALUE OF DIFFERENT SECTIONS IN RESPIRATORY DISEASES.[1]

BY ROBERT BELL, M.D., BOSTON.

BRONCHIAL asthma is a disease with which we are very familiar, as every practitioner has had to wrestle with it in its victims. I will, for the better bringing the subject before us, briefly describe the conditions found in the disease and in a typical paroxysm.

By far the greater number of authorities classify bronchial asthma as a neurosis. In almost every case three conditions are constant: (1) A diseased condition of the respiratory tract; (2) an external irritant, as odors, dust, pollen or some subtle atmospheric condition; (3) a chronic neurotic condition. The most important of these is the third, for often after correcting or removing the first and second, the third remains to prevent the cure of the disease.

The typical spasmodic attacks of the disease usually follow an attack of ordinary bronchitis, though this is not always the case, as an attack may be caused, by the inhalation of some irritant, or by some gastro-intestinal disturbances. If there is but one attack in the twenty-four hours, it is usually between 12 and 4 A.M. Trousseau, who was a sufferer from the disease, said that he heard the clock strike three in the morning for many years. When the paroxysm comes on, the patient is waked out of a sleep suddenly, urgently pressed for breath. He sits up, throws the body forward, struggles for breath or coughs spasmodically for the purpose of clearing the respiratory tract of mucous. At first the tract is congested and dry, and expectoration is difficult. After continued efforts expectoration becomes more copious and breathing more free. In some cases of bronchial asthma cough is not a prominent symptom, though these cases are rare. Accompanying the cough, yellowish or grayish translucent masses are frequently expectorated. The writer has often untwisted these masses and found a spiral thread an inch or two in length. These spirals were investigated by Curschmann and found to consist of spiral filaments and swollen fatty degenerated pus cells and cells from the broncheoles. There are also found crystals called the crystals of Charcot and Leyden. These crystals are not pathogonomic, for they are found in other diseases. The sputum often contains crystals of calcic oxalate and of calcium phosphate. In my own case when the paroxysms are severe, the sputum becomes exceedingly salt to the taste, like sea-water, and is very irritating to the nose and throat. The sputum is usually white, thick and viscid.

As to the means of relieving an attack of asthma you are all familiar. Most speedily and effectively by the hypodermic injection of $\frac{1}{4}$ grain of morphine sulphate, with $\frac{1}{100}$ grain of atropine sulphate. This remedy easily becomes dangerous if continued. The writer has found the $\frac{1}{2}$ to the $\frac{1}{4}$ grain of heroin hydrochlorate as effective and more so; and there is little or no disturbance after it, as it does not interfere with the secretions and is not depressing. Inhalation of the smoke of belladonna, stramonium and lobelia leaves and of the powder of potassium nitrate give speedy relief though not always lasting. Grindelia robusta, quebracho, euphorbia pilulifera, asafetida and nitroglycerine are used internally, but are all of doubtful utility. Between the paroxysms potassium iodide and arsenic may be used. In a few cases they act wonderfully, but in most cases are of no value.

Change of location, or of climate has been found the best means of combating the disease, yet even this means often fails. Those who know most of asthma know that every case is a law to itself and that it is a most capricious disease, and that even slight and unpromising changes may work a miracle.

Before trying the West the writer tried nearer resorts, as Western Massachusetts, New Hampshire, Nantucket and Bermuda. Though in some of these places benefit was received for a short time, there was no permanent good obtained. The writer next turned to the arid regions of the far Southwest.

Places of high altitude, of dry atmosphere and of abundant sunshine do the most to relieve asthma. We find in Colorado the above conditions. Denver or Colorado Springs may be taken as types of what may be found in Colorado; the writer spent seventeen months in these places. The average temperature for January is 27° F, for July 73°, and for the year 50°. The annual rainfall is 14.4 inches. The relative humidity 50%. We have in Boston an annual rainfall of 46 inches, with a mean annual temperature of 49° F. The temperature of Colorado you will see corresponds very nearly to that of Boston, yet the dryness, rarified air, and large percentage of sunshine make the climate essentially different.

While in Colorado, I tried to get some statistics, from resident physicians, as to the value of the climate for asthma. The information I obtained from Dr. Josiah N. Hall, member of the Colorado State Board of Health, will cover all that may be known. He says that 50% of those under forty years of age without emphysema or other complication get practically well. You will see that this limits the cures to a very small number, as few escape emphysema, who have had the disease for even a short time. Of those over forty years of age without any serious complication, or those under forty years, yet with some complication, $\frac{1}{2}$ to $\frac{3}{5}$ get some improvement.

The writer next spent seven months in South-

[1] Read before the Norfolk District Medical Society, February 26, 1901.

ern California. Most of the time was spent in Pasadena and at San Antonio Heights, the so-called asthmatic belt. Though a few of the lighter cases of asthma are relieved in Southern California, it cannot be recommended for it, as there are many places so much better. Southern California is not a dry climate as is generally supposed. Though the annual rainfall is only 15 inches, there are frequent dense fogs, which bring the relative humidity up to that of many places east of the Mississippi. These fogs are everywhere except in the mountains. I regret to say this of Southern California as it is one of the most delightful sections of our country. There is so much of interest to see, its fruits and flowers are abundant and varied; society is the best and one can enjoy all the facilities and improvements of modern civilized life. With reluctance I turned away from Southern California as it aggravated rather than relieved my trouble.

The writer next tried Arizona, spending seven months at Phœnix, the capital of the territory. The elevation of Phœnix is moderate, 1,100 feet; the atmosphere is exceedingly dry; the winters warm. The temperature in December and January, the coldest months, only touching the freezing point and that for an hour or two in the early morning for a few days. In these months the temperature rises at midday to about 60° F in the shade, so that with the added heat of the sun it is possible to sit out-of-doors nearly every day. There is less wind in Arizona than in any other part of the United States. This is due to the fact that it is walled around by mountains of about 10,000 feet on every side except the east, which side needs no protection. The absence of high winds in these arid regions is a great desideratum, as the fine alkaline dust is abundant and is very irritating and annoying if blown about. The annual rainfall is from 8 to 10 inches. The annual temperature 72° F. The relative humidity 36%, and during many days may not be more than 5% or 6%. The summers are very hot, yet on account of their dryness are not so hard to bear as the months of July and August in Boston. These data refer to the moderately elevated parts of the Territory. If the heat is found to be oppressive it is easy to go to Prescott about 100 miles from Phœnix, where we can find a climate like that of Colorado and an elevation of 5,300 feet. Asthma is much benefited in Arizona and a large per cent. of cures are made.

If your patience will bear with me, and at the risk of some repetition, I wish to make a few observations on the comparative value of these different regions for respiratory affections. I will speak first of chronic nasal and post-nasal catarrh and dismiss them with a few words. These diseases are as prevalent and aggravated in Colorado and Southern California as they are in the East. This is due to some subtle atmospheric condition. Nasal and post-nasal diseases are much benefited in New Mexico and Middle Arizona. Chronic bronchitis is generally benefited throughout all the arid belt. The most important of all respiratory diseases is pulmonary tuberculosis, and of all treatment, climatic stands first in combating it. As we have a germ disease we must have conditions in a climate antagonistic to the growth of germ life, and conditions that fortify the resistance of the individual against auto-infection and against infection from the outside. The far Southwest meets these wants better than any part of our country. To antagonize germ life we need: (1) The greatest number of hours of sunshine possible; (2) dryness of atmosphere; (3) sun heat sufficient to promote sterilization, or constant cold to prevent germ growth; (4) a porous soil; (5) Freedom from dust and high winds. Colorado has all these conditions except the last. It also has a habitable elevation of from 5,000 to 10,000 feet, which is especially beneficial in early cases. It is possible to be out of doors most of the time, though the winters are often uncomfortably cold, and the winds in the spring especially high and dust storms frequent. The changes of temperature are often sudden and extreme. The cold of winter, the high winds and dust and the sudden changes of temperature are depressing to advanced cases of phthisis. Very nervous patients should avoid the high altitudes. Patients during the first months of their sojourn should rest a great deal. This is a hard thing to do, as the atmosphere is very exhilirating and stimulates to activity.

Dr. Carroll E. Edson, of Denver, very rightly insists on the value of rest, especially where there is fever and cough. Highly nervous patients often injure themselves by constant activity.

Southern California is frequently resorted to by the phthisical. Dr. Tyson, in the second edition of his valuable work on "The Practice of Medicine," writes, that Southern California has a dry, equable climate. This is a misconception, which is very general in the East. Considering the amount of rainfall, 15 inches, it would seem to be very dry, yet the dense fogs to which I have previously alluded, prevail over all Southern California, and can nowhere be escaped, except at an elevation above 2,000 feet. I would not condemn Southern California as a resort for the phthisical, as many of the earlier cases are benefited, yet I would not recommend it as there are many places so much better.

Arizona, in my judgment, stands first as a climate of value for all respiratory diseases. The physical reasons for this belief I have already noted in discussing the subject of asthma. From November, 1899, to May, 1900, during part of the writer's sojourn in Arizona, there were but three rain showers and these occurred at night.

If I were asked what place above all others I would choose for a patient with a chronic respiratory disease, I should say, Tucson, Arizona. It stands on a mesa of about 2,400 feet elevation. There is very little irrigation carried on near it. Its annual rainfall is from 8 to 10 inches. The mean average annual humidity 36 %. It is singularly free from wind, dust and sudden changes of temperature because it is nearly surrounded by high mountains. It has a maximum of sunshine and is

a desirable place to live in, meeting all the requirements of civilized life.

New Mexico has several desirable places suitable for health resorts. These places correspond very nearly to those of Colorado.

A few practical points for physicians to bear in mind, in sending patients to the far southwest. Be careful to send them in the first stage of their disease. Second and third stage patients may have life prolonged, but rarely recover. They should spend the early months of their sojourn in resting and living as much as possible in the open air. If a patient is highly nervous select a place of moderate altitude. If a patient is liable to hemorrhage, also be careful of high altitudes. Do not send from home a patient who is too weak to endure the fatigue of the journey. Do not send those who will be a tax on the charity of the good people of the West. Western people are very benevolent, and are willing to help and sympathize with the unfortunate, but the East ought to contribute much financially to the support of the sick and needy, for there are many who are stranded there, without money and without friends, and who suffer many hardships which they might have avoided by staying at home. Impress upon every patient that he is to remain in the West for many months, after his cough has ceased, and until he has regained and held his weight, and under no consideration should he return to the East, till he has received the sanction of a competent and experienced physician. It would be well if every patient sent, could from the outset be placed in the care of some good resident physician and there are many there of the best in our country, while by their side flourishes as a green bay tree every kind of fakir and "path" known, East, West, North or South.

CHOREA DURING PREGNANCY.[1]

BY F. S. NEWELL, M.D., BOSTON.

SYMPTOMATICALLY the chorea which occurs in pregnant women is identical with infantile chorea. The special conditions under which it develops, and the grave form it tends to assume in a large proportion of cases, give it a special significance, so that it deserves to be considered by itself as a definite complication of pregnancy, rather than as a modification of the more common chorea of adolescence.

Chorea in the adult, that is, in a patient who has never suffered from infantile chorea, develops usually during pregnancy — a period when the whole organism of the woman is subjected to marked alterations under the influence of the pregnant state. At this time, as at puberty, changes occur in the woman which involve all the important organic systems. The circulatory, digestive, and respiratory systems are all affected to a greater or less extent, and all the secretions are more or less modified; the nervous system is perhaps the most profoundly altered. At any rate it may be said that the effects of the pregnant state are most evident in the nervous system, and that all the other organs are more or less influenced by the condition of the nervous system.

Chorea deserves a special place in the pathology of pregnancy. It is not an accidental complication due to the recurrence of a previous infantile chorea, but in the majority of cases appears for the first time during pregnancy, that is, it is to a great extent, produced by pregnancy. Pregnancy is not the only causative factor, but is the fundamental condition on which the other elements in the causation of chorea depend. In 1851, M. See described the various elements which go to cause chorea in pregnancy as follows: "In pregnancy there exists a condition of chlorosis and hydremia, from which arise vascular disturbances, neuralgias, neuroses, and the loss of nervous equilibrium which accompanies them. These are followed by hysteria and chorea, separately or together; one predominating in accordance with the antecedent history of the patient. Add to this nervous instability a marked predisposition to rheumatism, and the effect of pregnancy as the immediate exciting cause becomes evident, acting in the presence of the same predisposing causes which exist in the chorea of children."

Etiology and pathology. — From the standpoint of etiology all the factors which have been considered as predisposing to infantile chorea are to a great extent active in the chorea of pregnancy. The nervous system of the patient presents an impressionability either hereditary, or acquired from some previous affection. There seems to be little doubt at present that a tendency to chorea may be inherited. Huntington has shown conclusively in his genealogical tables that chorea exists in certain families for generations, and that in a considerable proportion of cases, the first manifestations of the disease become apparent during pregnancy. Lannois, Charcot and others, agree on the importance of heredity as an etiological factor in many cases. This predisposition is not, however, evident in every woman whose forbears have had chorea, as numerous examples prove that chorea may skip a generation, or die out, in a given family.

Another important factor in the etiology of the chorea of pregnancy is the existence of a previous chorea during childhood. A woman who has once suffered from chorea, whether mild or severe, is liable to a return of the disease during her first pregnancy. Barnes says "Pregnancy furnishes a proof of the cure of chorea." It is far from being true, however, that every woman who has chorea during pregnancy has had a previous attack during childhood. Of 96 cases which Charpentier records, only 20, or about 27%, gave a history of a previous chorea. Pinard, on the other hand, reports that of 8 women in his practice who developed chorea during pregnancy, 7 had had a previous attack. Chorea is most apt to manifest itself for

[1] Read before the Obstetrical Society of Boston, December 18, 1900.

the first time during the first pregnancy, but the rôle played in the etiology by the first pregnancy must not be exaggerated, for of 107 cases reported by Barnes and Bamberg, only 56 were primiparæ. Young women are most apt to be affected, chorea seldom appearing for the first time after the age of thirty. When a woman has had chorea in one pregnancy it is apt to recur in subsequent pregnancies in a more and more serious form, although the reverse of this may occur. For the evidence on this point to be of marked value it would be important that the same observer should follow the patient in all her pregnancies, and in hospital practice, from which the bulk of the cases are reported, this is unusual.

It is a difficult matter to determine the influence of rheumatic fever, chlorosis, hysteria, and the infectious diseases and auto-intoxications in causing an attack of chorea. The etiological importance attached to these various elements varies according to the prevailing belief at the time at which the cases were reported and the weight of authority carried by the various observers. For a long time, from the observations of Roger, See, Jules Simon, and others, chorea among children has been believed to be closely connected with rheumatism. This applies only to a slight extent to the chorea of pregnancy, for the majority of patients who develop this disease give no history of a previous rheumatism. Charcot admits a certain doubt of the etiological importance of rheumatism when he says: "In my opinion there is not a rheumatic chorea in the strict interpretation of the phrase. In other words I do not believe that chorea can even be considered as the equivalent in the nervous system of the articular or visceral changes of rheumatism. It seems to me, however, that although the opinion I am opposing is the result of error, there is no doubt that chorea and articular rheumatism often exist together either in the same individual or the same family. The common coincidence or alternation of the two diseases is not enough, however, to show that they are identical or even closely related. It simply shows the existence of a certain affinity between them, the cause of which is unknown."

From the standpoint of the nervous system the analogy between the changes which occur in the system at puberty and during pregnancy may be cited to support the view of Jeffrey in regard to the etiology of Sydenham's chorea. He considers it a disease of evolution, affecting the cerebro-spinal system and allied closely to its development. The general opinion of authorities today, especially in England, is that the chorea of pregnancy is entirely of nervous origin. They consider it to be a neurosis, due to the stimulation of the utero-ovarian plexus. Barnes laid stress on the relation of the establishment of the menstrual function and the development of chorea, and Barton-Hurst reports a curious case of chorea in which the movements were increased at the time of the periods. Fontenau explains the physiology of the disease in this way. "In pregnant women the excitation of the nervous system begins in the utero-ovarian plexus, and passes through the great sympathetic to the cord and brain, and thence to the muscles through the motor and sensory nerves. In these cases there arises a depression of the intellectual centres, which should inhibit the movements, due either to hyperstimulation, or, on the contrary, to a complex mechanism analagous to that described by Brown-Sequard."

Whatever physiological explanation may be invoked to give the key to the choreic movements, the fact remains that the whole organism is in a state of unstable equilibrium ready for the stimulus which causes the outbreak. This state of nervous instability is closely related to hysteria, and has caused at times more or less confusion between hysteria and chorea. The hysterical stigmata are, as a matter of fact, to be noted in a large proportion of the cases of chorea during pregnancy. If it is admitted, as has been claimed, that chorea is a manifestation of hysteria in pregnant women, it is possible to assert that infantile chorea is only infantile hysteria. Whether we place the cases of chorea with hysterical stigmata in a group by themselves, or class the cases under the head of hysteria with choreic movements, the fact remains that hysteria is a predisposing cause of chorea during pregnancy.

Previous infectious diseases probably have an etiological importance in chorea, in that they prepare the ground for its development. This theory has been thoroughly discussed by Triboulet. Although he eliminated from his study of chorea the cases occurring during pregnancy, his conclusions apply to them equally as to the infantile cases, and in investigating the previous history of the patients it is often possible to get a history of a previous infection which will give the clue to the etiology of the chorea. Furthermore, auto-intoxication is so frequent in pregnancy that it is unnecessary to invoke the aid of external infections to establish a satisfactory etiology for the chorea. Duchateau, in his classification of chorea, places the chorea of pregnancy under the heading of "chorea of auto-intoxication." When we remember the disturbances which arise in the functions of excretion and assimilation during pregnancy, and the rôle they play in eclampsia, there is some reason for considering chorea at this time as more or less closely analogous to eclampsia in its origin.

Pregnancy, alone, is no more to be considered as the direct cause of chorea than is active growth in children the cause of infantile chorea. In almost all well-marked cases of primary chorea during pregnancy, some more or less violent nervous shock is the apparent starting point of the trouble. Jaccoud reports a patient who was seized with violent choreic movements after a violent family quarrel. Mosler's case developed after a slight fall. Bamberg's case fell into the water. Hand's case fell from a ladder. Kemper's case waked at night to find the house on fire and was seized next day with violent choreic movements. Certainly, if it is true as has been said, that mental shocks "are the cause, whose active influence

can be pointed out in all the neuroses," it is impossible to deny their influence in the causation of chorea in pregnancy.

Symptoms. — The disease occurs most commonly in young women from eighteen to twenty-four years old. It is relatively common from twenty-four to thirty, but very rare after that age. It usually occurs in the first pregnancy but occasionally it occurs for the first time in later pregnancies. It may begin at any period of the pregnancy. In some cases its beginning coincides with conception, and it has been said to be one of the earliest signs of pregnancy. It most commonly develops during the first five months, although it occasionally does begin in the last four months of pregnancy, becoming the more rare the nearer to term. A few cases have been reported in which the choreic movements have first made their appearance after delivery.

In the majority of cases the movements come on gradually, becoming more violent as the time of delivery approaches. In certain cases, however, the onset is violent and the progress rapid, acquiring a considerable degree of intensity in a very short time. In other cases periods of remission and exacerbation alternate. The movements are usually bilateral, although at times only one side is involved. Hemichorea is very rare, however, although one side is usually affected before the other. The intensity of the movements is apt to be much greater on one side than on the other, being more marked on the side which was first involved.

Prodromal symptoms may or may not be present, but when present are apparently nervous in their nature. The temperament of the patient may change abruptly, and marked irritability and loss of self-control develop. Loss of memory and hallucinations of sight and hearing may be present. If these symptoms do not precede the outbreak of chorea, they often accompany it and form part of the general picture of the disease. The choreic movements most often begin in the left hand and arm. The hand flexes and extends on the forearm. The simultaneous or separate contraction of various groups of muscles in the arm produces movements of pronation, supination, or flexion of the forearm, in accordance with the muscles involved. The movements are involuntary and abrupt, and become exaggerated if the patient tries to control them. The fingers become useless for the more delicate work the patient is accustomed to use them for, and the attempt at grasping objects in the most ordinary acts of life shows an awkwardness which is diagnostic when noted. In a short time the other arm and the lower limbs become affected. This results in an alteration in the gait, and in the sitting posture, and in a series of abrupt changes of position as strange as they are unexpected. When the patient tries to remain motionless in the standing position, an abrupt contraction of the extensors changes her centre of gravity, and necessitates a series of awkward movements in the attempts to regain her balance. In severe cases walking is rendered difficult or impossible by the inco-ordination of the muscles.

The abrupt abnormal contractions may be observed even in the body and shoulders. The respiratory muscles may be affected in severe cases to such an extent that breathing, particularly slow and sustained expiration, is rendered difficult. All the muscles of the head and neck may be involved so that not only the muscles of facial expression, but also those of the pharynx and larynx may be the seat of twitchings. The movements cease during sleep, but only when ideation is completely suspended, for example, in sleep without dreams. According to Jaccoud, the mental process which produces dreams stimulates the medullary axis, as in the waking condition, and produces inco-ordinate movements, less marked it is true than when the patient is awake, but still unmistakable.

The mental disturbances which accompany Sydenham's chorea are found in certain cases of the chorea of pregnancy before the motor disturbances. Modifications of the moral sense, imperfect ideation, and hallucinations may be present. Sleep is apt to be restless and troubled by dreams. Mania and dementia have been observed.

The nutrition of the patient suffers in grave cases from the difficulty of feeding the patients, and from the great exhaustion which accompanies the incessant muscular activity. The spasms of the soft palate and lips favor the introduction of food into the air passages.

The fetus may, in mild cases, live and be born at term. In severe cases it usually dies and causes abortion or premature labor.

The chorea usually lasts during the whole term of gestation and sometimes days or weeks after delivery. As a general rule the spasms become less violent after delivery, a fact which indicates the appropriate treatment in severe cases. This is not an absolute rule, however, and in any case after a temporary amelioration the spasms may again increase and become chronic. Hart reports 3 cases in which the chorea, after repeated attacks in successive pregnancies, became chronic. Cardiac complications may appear as in infantile chorea, but in a much smaller proportion of cases. They are more apt to occur in the severe cases than in the milder ones. In grave cases a rapid loss of strength occurs, and such a degree of emaciation and debility may be produced as to render the loss of blood which accompanies abortion or premature labor, a serious if not a fatal complication. A fatal termination may occur before the expulsion of the fetus in patients in regard to whom a temporizing method of treatment is adopted. Although it is to be considered in all cases a serious disease, with a doubtful prognosis for the future, it is in many cases definitely cured, or may only leave slight traces.

Prognosis. — The disease is a rare one during pregnancy, and months may go by in a large hospital without a single case being seen. Considering, however, the short time that a woman is under observation in a lying-in hospital, it is probably true that many cases in which the movements are

very slight are not included in the published statistics. It is also true that the choreic movements may not attract the attention of the obstetrician sufficiently to be reported, unless they threaten the continuance of pregnancy. These facts explain the difficulty of obtaining the true statistics of chorea, especially the percentage of its occurrence. For this reason any prognosis based on statistics is unreliable.

The mortality in the published tables varies from 1 in every 17 cases to 1 in 3½ cases. In the more recent papers the statistics are better and more cases are reported. Pinard says the prognosis which would have to be given, if the published statistics were relied on, is more grave than the true condition of affairs warrants, provided that the patients receive adequate treatment. Nevertheless, the prognosis of chorea in pregnancy is much more grave than in early life. The fetal life is always seriously compromised. According to the older statistics, pregnancy is interrupted in one-half the cases. According to later reports the prognosis for the child is better as well as that for the mother. Pinard reports, in 8 cases, 8 well-nourished infants at term. The viability of the infant necessarily depends on the general condition of the mother as well as on the severity of the chorea and its complications. Children born from choreic mothers occasionally show choreic movements soon after birth.

Treatment. — In the treatment of chorea the principal drugs which are used are the sedatives, bromide, chloral and morphia and the alteratives, arsenic and iron. In grave cases ether and chloroform may be given as in eclampsia. Rest in bed and freedom from worry are also valuable adjuncts to treatment. Every effort to improve the general nutrition of the patient should be made. Pinard uses large doses of chloral to the point where the patient is in a condition of continuous sleep. She is only waked for food. This treatment is continued until considerable improvement in the choreic movements occurs. The doses are then diminished, but are continued until the movements entirely disappear. In very grave cases the early induction of abortion or premature labor is imperative. The success of the sedative treatment serves to demonstrate the importance of the nervous element in the chorea of pregnancy, which differs from ordinary chorea more in its nature than in its symptomatology.

M. F., age nineteen.

Previous history. — Measles, scarlet fever; no other children's diseases. When twelve years old had chorea for the first time. For the next five years had an attack every summer. No sign of chorea during the cold weather. Last attack two years ago. Much more severe than previous attacks. Could hardly speak, and could not use hands to any extent. Catamenia regular, except during the previous attacks of chorea, when at one time she skipped five months. Last catamenia began May 6, 1899; normal in every way.

Present illness. — In June first noticed that speech was abnormal. Enunciation difficult. In July hands began to twitch. Left side was first affected, then right side. Lower limbs slightly affected in August, but not enough to interfere with locomotion. At this time she first came under observation.

Physical examination. — Slight, anæmic girl. Mucous membranes very pale. Heart not enlarged. Slight systolic murmur over apex, not transmitted to axilla. Marked twitching of face and hands, especially on left side. Lower limbs slightly affected. Speech was very thick, and enunciation was difficult. Twitchings of hands so marked that co-ordinate movements were impossible.

Treatment. — Fowler's solution in increasing doses until the physiological limit was reached; then given in five-drop doses three times daily. Rest in bed and careful feeding formed the rest of the treatment.

Contrary to the usual rule in these cases, the symptoms yielded promptly to treatment and absolutely disappeared during the eighth month, so that at the time of her confinement in the Lying-In Hospital there was absolutely no evidence of the affection.

In many ways this patient afforded a typical example of the chorea of pregnancy. The affection developed before the diagnosis of pregnancy could be made, and if the full history had been known at that time would have furnished a valuable sign in the diagnosis of the pregnancy. The marked chlorotic condition was apparently the exciting cause of the disease. The choreic movements began on the left side, but later became bilateral. The circumstances of the patient were such that no efficient treatment could be carried out where she was; but after her admission to an institution where quiet and proper food could be obtained, her progress was more rapid and the unexpected result of entire cure before delivery was obtained. This would suggest that in this case the pregnancy was not responsible for the chorea except in so far as it acted to produce the abnormal conditions of the blood and nervous mechanism on which the development of the chorea depended, since, when these conditions were relieved to a certain extent, the chorea disappeared in spite of the existence of pregnancy.

To give some idea of the frequency with which chorea complicates pregnancy, a study of the records of the Lying-In Hospital shows that in about 11,000 cases there have been 13 cases of chorea. Eleven of these cases were primiparæ, and gave a history of previous attacks during childhood. One of the others was a multipara in her third pregnancy, and gave no history of previous attacks either in childhood or with her other children. The last case was a secundipara; chorea in childhood but not in first pregnancy. In ten of the patients the movements entirely disappeared within a week of delivery, and in the other 3 the movements were very slight at discharge. None of the cases were severe enough to require active treatment, and in all of them, except for a slight irregularity of temperature during the convalescence, the progress was normal.

NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

THE ECONOMICS OF THE X-LIGHT TUBE.

A PROPERLY prepared x-light tube deteriorates in use. No practical means for preventing this are known, though vacuum regulators which introduce fresh gas into the tube are supposed to accomplish the result. The deterioration of a new tube shows itself by the light becoming of such character that it will not penetrate the tissues. If this difficulty is overcome there is a short period during which the tube is valuable, though with a powerful apparatus it lasts but a few hours; the resistance of the tube steadily rising, until the light penetrates the bones almost as well as the flesh; the tube becoming useless, because it does not properly differentiate tissues differing little in density. At last no current will go through. With a powerful apparatus, especially a high frequency generator, the whole process is one of a few hours only.

What is the cause of the phenomena and what the remedies? As any theory which will serve as a working hypothesis is better than none, I give the one used in my attempts to make an efficient x-light apparatus.

To produce x-light we depend upon gases amalgamated with the metal terminals in a vacuum tube. These particles are driven by the electric current, from the cathode against the target where they are heated to such a high degree as to become radiant centres from which x-light arises. The higher the velocity of impact the greater the temperature and the more penetrating the light. On this theory the process of "pumping" a tube does not consist in simply removing the air but is twofold. Enough air must be taken out to allow the gas particles shot from the metal of the cathode by the electric current, to have a comparatively free path on their way to the target. So much gas must be driven, by electricity, from the metal of the terminals, that the electric stress will not make it come out too fast when the tube is used. The effect of producing x-light according to this theory is to necessarily bring out these gases. If they did not come out and we depended upon the air in circulation in a tube we should not have an efficient cathode stream and sharp

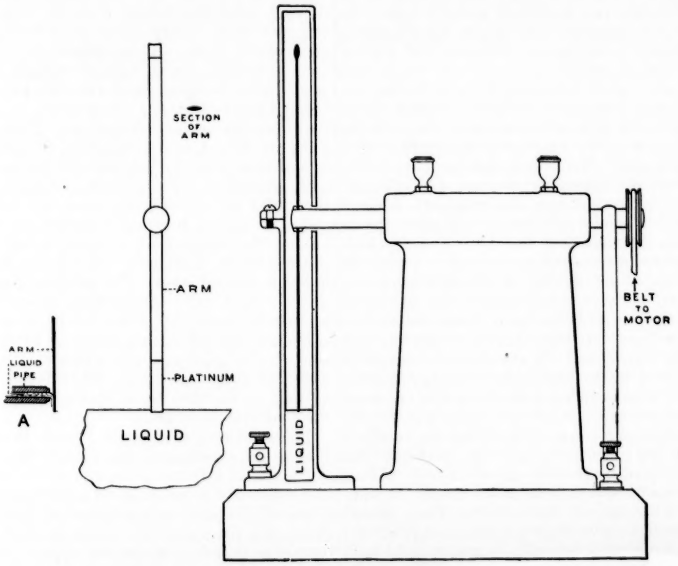

FIG. 8.

definition. The effect of use, then, is to lower the vacuum in an x-light tube. As a result the particles forming the cathode stream must meet with more obstruction from the increased density of the mist filling the tube, through which they must force their way to the target, consequently they strike with less velocity, are heated to a less degree, and give rise to a kind of light which is unsuitable. By means of a reservoir and movable dam, outside the tube, the current may be held back and sent in powerful surges which impart a higher initial velocity to the cathode stream particles causing them to strike the target at a sufficient velocity, in spite of the increase of the mist through which they must force their way.

After a time the continued formation of a cath-

ode stream so reduces the number of particles in the metal, that the current finds more difficulty in passing; charging each particle therefore to a higher degree, producing in it a higher velocity and causing it to strike the target so hard the resulting light becomes of more and more penetrating character. This is the explanation of the second stage, the advancement to the third state being hastened by the fact that the cathode stream particles are absorbed to a certain extent by the glass walls of the tube. The third state is but a continuation. The particles have still further diminished in number — those remaining are more tightly held by the metal — the current cannot separate them unless the potential is increased: the tube gives no light, for no current is sent by means of the cathode stream. What is the remedy? The one in universal use is to introduce gas into the tube. Crookes recommended water vapor. In earlier notes formulæ were given for chemicals which liberated oxygen or nitrogen, but finding that the cathode stream spectrum was chiefly that of hydrogen I gave directions for introducing this gas expecting it would be the ideal regulator, but more powerful generators showed that simply introducing it would not restore the pristine brilliancy of a tube. No common gas put into a tube will permit it to continue to give a satisfactory light with the expenditure of a reasonable amount of power. The effect of introduciug more gas is to increase the density of the mist through which the cathode stream must force its way. When the particles move too rapidly, as in a high resistance tube, where no gas has been introduced, the introduction of gas retards them and alters the character of the light, but the effect is temporary and the theory a poor one. If my theory of x-light is true, we need to do something entirely different, namely, to restore the same kind of gas to the metal of the cathode as has been used up in making the cathode stream. I have given various methods for doing this imperfectly, but the chief problem in x-light tubes is to find the ideal way. Until the problem is solved generators should be constructed to conserve the supply. They should also be made to give high potentials, that an external reservoir and dam may be used to hold back the current and send it in powerful surges when, as in a new tube, the mist is increased by the cathode stream, or in an old tube by introducing more gas than was intended. The importance of this is well shown in Fig. 87, *Electrical Review* for Dec. 26, 1900. The negative had an exposure of twenty-eight minutes without such a reservoir and dam, the plate not being acted on; while in Fig. 88, the use of a reservoir and dam produced a good picture with the same tube in twenty-eight seconds.

To economize the supply of gas in the metal the surges should be of the shortest possible duration and yet of sufficient volume to produce the required light. The tube should then rest, until to make the light continuous to the eye, another surge must be sent. Twelve hundred surges a minute are enough. The volume of each should be several horse power if we wish to advance rapidly in the differentiation of tissues in the thick parts of the body with the fluoroscope. When I attempted to work in this direction with static machines, even the most powerful one made, which I constructed for my experiments, had neither potential nor amperage enough, though the plates averaged two metres in diameter and weighed over a ton. For the present, then, coils are better, but the insulation should be more perfect, for those in use are quickly spoiled by less powerful surges than it is desirable to use. I have found that micanite is the only material suitable for insulation between the primary and the secondary. I am indebted to the Micanite Company for their co-operation, for without it, experiments with heavy surges would have been abandoned, until Trowbridge placed his generator within reach. As the duration of a surge may depend upon the break, it is of importance to improve this. Only some modification of the electrolytic break of Spottiswoode (1876) will bear powerful surges without rapidly deteriorating. I have designed breaks on this principle, one being shown (Fig. 8). It consists of a covered tank containing an electrolyte. Two platinum arms are caused to revolve in such position that one of them may dip into the solution once during each revolution. The second arm does not touch the liquid, its object being to act as a balance. If the shaft makes fourteen hundred revolutions a minute the duration of a surge is but a twenty thousandth of a minute. It may be further reduced in several ways. The solution may be lifted into a tank and discharged from an orifice against the arm. Or a second break may be introduced into the circuit, the time of the immersion of the platinum not exactly corresponding with that of the first break. The effect is to deliver current to the first break during only a part of the time it is immersed.

Before closing this paper I wish to call attention to an experiment by Trowbridge in 1898. By means of a Plante generator of his own design and construction he obtained a photograph of the bones of the hand in a millionth of a second. In doing this he placed the mark so high that few have seen it and no arrow has approached it. The experiment was of the deepest significance encouraging me to go on experimenting with higher potentials for producing x-light.

Conclusion.—The most important discovery to be made in x-light tubes is to find how to keep the character of the light constant. Meanwhile the best way to excite an x-light tube is to use surges of millions of volts and many horse power, each surge lasting for not more than a millionth of a second.

AN X-LIGHT PLATE HOLDER.

There are two methods in use for protecting sensitive plates in making photographs by x-light. The plates are wrapped in colored paper, or the ordinary wooden photographic plate holders are used. Both methods are undesirable, for an x-light tube fills a room with a bright though invisi-

ble light, which, dashing about in every direction, fogs the plate or even makes images on it of objects on the opposite side from the body being photographed[1]. No x-light should reach a plate except what comes through the patient being

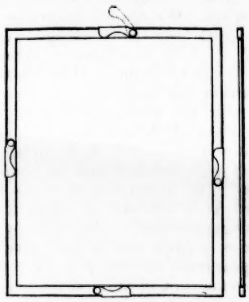

FIG. 5. — X-LIGHT PLATE HOLDER.

photographed. A first requisite in an x-light plate holder is a means to achieve this; (2) the plate holder should bear the weight of a patient without risk to the plate, even though it is necessary for him to sit on it; (3) it should be thin

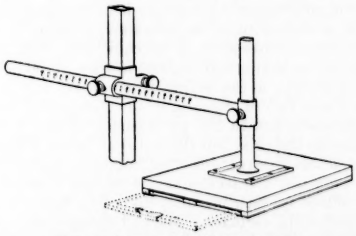

FIG. 6. — SUPPORT FOR PLATE HOLDER.

to avoid discomfort to the patient when he lies on it; (4) it should be moisture proof to protect the plate from perspiration. I have used for several years metal plate holders which meet these and other requirements. The latest and simplest

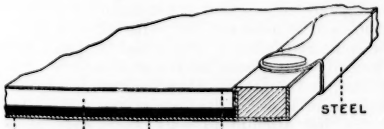

FIG. 7. — SECTION OF PLATE HOLDER.

plate holder is shown in the figures. Total thickness seven millimetres. It is in two pieces, a back of nonradiable, a front of radiable metal (aluminum) held together by steel clamps. A support for the holder was shown in Fig. 2 illustrating an x-light table in a former note.[2] Another support attached to the upright shown in Fig. 2 is illustrated in Fig. 6.

[1] Electrical Review, April 11, 1900, note 94.

REMOVING THE IRRITATING GASES PRODUCED BY X-LIGHT GENERATORS.

A powerful x-light generator produces ozone and combinations of nitrogen and oxygen. These are irritating to the respiratory mucous membranes. A fan should be placed within the case of a static machine to drive the gases into the nearest chimney. A coil should have the spark gaps enclosed as shown in Note 112[3], the gases being drawn by an aspirator into the waste water pipes.

[2] Boston Medical and Surgical Journal, March 21, 1901.
[3] Electrical Review, December 26, 1900.

Clinical Department.

A SPECIAL FORM OF PHLEGMON OF THE NECK.

BY F. P. EMERSON, M.D., BOSTON.

IN 1893, under the above title, in the *British Medical Journal*, Drs. Brousses and Brault published an article describing a suppurative process enclosed in a space of prismatic form, situated below the back part of the tongue, and bounded in front by the hyoglossal and thyrohyoid membranes and behind by the anterior surface of the lower and attached portion of the epiglottis. The upper boundary is formed by two membraneous layers, one consisting of the lingual mucous membrane; the other and deeper layer of fibrous tissue. This cavity it is stated is divided into two lateral halves by a membraneous septum, which seems to be an extension downwards of the median glosso-epiglottidian ligament. This enclosed and divided space, which is called by the authors the glosso-thyro-epiglottidian cavity, may, it is stated, become inflamed and thus give rise to diffused phlegmon of the neck.

Mrs. S., Roxbury, age sixty-four years, born in Bangor, Me. Father died age seventy-six, carcinoma of stomach; mother died in childbirth; five brothers died young; one sister died of carcinoma, and one now has it. Has had three children. Measles at ten years. Formerly subject to tonsillitis, but for the last ten years exempt and her general condition good. Last three months nervous and debilitated. Had been having sinking spells which she referred to her heart. During the last week has been having a naso-pharyngitis and tonsillitis. Dr. H. was called in December 29th and found her pulse irregular but not increased in frequency. Temperature 99°, and some dyspnea. On December 30th he was called at 6 A.M. Patient aphonic but no urgent dyspnea; at 9 A.M. dypsnea somewhat more pronounced, and by noon attended by cyanosis, anxious facies and great difficulty in deglutition. At this time I saw her in consultation and found the following condition.

Examination. — Externally inspection shows the neck uniformly swollen down to the clavicle, presenting a three-lobed tumor separated by membraneous septæ, full and resistant throughout. No cervical glands; no redness; sensitive to pressure and of a woody feel. Great difficulty in swallowing and breathing. Pulse normal and fair quality. Subjective feeling of depression and weakness increased by loss of sleep during the preceding two nights. Facies anxious. Laryngoscopy shows a general laryngitis, with the lumen uniformly encroached upon. The alignment of the vocal chords normal but covered by the ventricular bands. No edema or paralysis; no exudate. Tonsils and pharynx not now abnormal. Culture shows no bacilli of diphtheria. Epsom's salts had been administered. The dyspnea was not sufficiently urgent to require immediate action, and as the case had gone along for a week it seemed probable that twenty-four hours might show a beneficial change.

Ice poultices, alternating with unguentum resorcin, one drachm to the ounce of lanolin, was recommended; also cracked ice and a steam spray of campho menthol, with supportive treatment, was given.

On December 31st pus was seen to be exuding from the left side of the larynx. The discharge was gradual. The deglutition improved and convalescence was uneventful.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

(Concluded from No. 16, p. 380.)

INJURY OF THE SPINAL CORD.

HARTMANN[7] has made an elaborate clinical and pathological study of 8 cases of injury of the spinal cord. He recognizes a true commotio spinalis, that is, a disturbance of the cord giving rise to well-marked spinal symptoms, which disappear entirely in a week or so. The more severe spinal conditions are divided into two classes: those complicated with lesions of the vertebral column, and those not associated with such lesions. This latter class is again subdivided into two classes: in the first the disease follows the injury immediately, and in the second a chronic spinal disease develops as a late result of the injury. In this last group he reckons chronic anterior poliomyelitis, sclerosis, gliosis, sclero-gliosis and syringomyelia of traumatic origin. In studying the mechanism of injuries of the cervical cord he distinguishes those due to direct injury, and those due to indirect injury. The latter arise from the peculiar structure of the vertebral column — a rigid thoracic portion and a movable cervical portion — and the forces exerted by the position of the head in falls upon the back (the natural tendency to flex the head and the force exerted by the weight of the head). In this way lesions of the cervical cord may arise indirectly from violence applied to the thoracic vertebræ. The histopathology of those uncomplicated, directly traumatic affections must be considered separately as to the various tissues, since our pathological conceptions of inflammation, etc., are still obscure. We cannot determine definitely the pathological basis (hemorrhage, necrosis, inflammation, etc.), of a traumatic spinal disease from the clinical symptoms. The diseases of the different tissues naturally vary in intensity, and this fact, with the pathological changes in the reciprocal action of these tissues, forms the basis for the difference in the anatomical changes. The primary degenerations may be lymphogenous or ischemic. The degeneration of the periphery of the cord is a mixture of these forms with secondary degenerations. The tendency to regeneration varies greatly and it may give the anatomical appearances the stamp of a lymphogenous primary degeneration of nerve substance or a more active regeneration of connective tissue resembling a non-purulent inflammation.

Among the pathological processes he distinguishes in the membranes, hemorrhage, cicatricial contraction and adhesive meningitis; in the lymph apparatus, lymph stasis, lymph infiltration, lymphogenous degeneration (Schmaus's primary necrosis), and cavity formation; in the vascular system, primary and secondary hemorrhage, hyperemia, proliferation of endothelium, changes in the adventitia, obliteration of the capillaries with consecutive ischemic degeneration, true periarteritis and arteritis; in the neuroglia, moderate proliferation about foci of disease, in the peripheral zones of the cord, and in the perivascular spaces with a change in the cells; in the nervous tissue, primary mechanical destruction, lymphogenous and ischemic necrosis, diseases of the roots and changes in the cells of varying intensity and often remote from the seat of the violence. Marked changes may arise primarily without any hemorrhage. The lesions in the cells and roots are not as dependent upon the seat of the injury as are the general changes in the cord, and we thus find disseminated foci of disease, degeneration of the roots and changes in the cells at a considerable distance from the point of greatest alteration, and these remote lesions may also influence the clinical symptoms.

Chipault[8] shows that arthropathies of a trophic nature are occasionally met with after injuries of the spine and spinal cord and also in spinal caries. Clinically they somewhat resemble tabetic arthropathies, and sometimes they are exactly similar to them, as in a case of fracture of the spine, where, at the first attempt to walk, there suddenly developed an enormous swelling of the right knee. Most of the arthropathies following injury or caries, however, develop under the form of an effusion with little or no deformity, since the patient is confined to his bed, and thus is less liable to injure the joint by attempting to walk; while tabetic patients increase the joint trouble by keeping about. The arthropathies in the cur-

[7] Jahr. f. Psych., xix, 380, 1900.

[8] Trav. de neur. chir., v., 76, January, 1900.

able forms of spinal injury often assume the form of a slight effusion, and they may be permanently cured instead of increasing to the severer forms seen in tabes.

HEMATOMYELIA.

Lépine[9] has collected 227 cases of hematomyelia and has supplemented his study of these cases by various experiments. The predisposing causes, — sex, age, and manner of life — are of slight significance. Injury is responsible for about 90% of the cases of primary hematomyelia and congestion for the rest. Injury is due to fracture or dislocation of the vertebræ, stretching of the cord (from forced movements of extension of the trunk, from suspension as in the treatment of tabes, and from certain obstetrical maneuvers), stretching of the spinal roots, and simple commotion of the cord. The cases which follow violent convulsions, exposure to cold and sexual and alcoholic excess are probably due to congestion.

Hematomyelia may also follow the rapid change from high to low atmospheric pressure in coming out of a caisson. Hematomyelia may also occur secondarily in acute or infectious myelitis, thrombosis or embolism of the cord, chronic myelitis, syringomyelia and tumors; but only 38 out of 227 cases were secondary. Lépine found that, by injecting blood into the cord after a previous laminectomy, he could reproduce the conditions of primary hemorrhage. The blood expands by preference upwards in the gray columns, but not into the anterior horns which seem to resist. The central canal is the chief channel for extending the hemorrhage, and the tissue about the hemorrhage becomes softened. Simple puncture provokes diffuse capillary hemorrhages, especially in the gray matter, with secondary myelitis of the gray matter and dilatation of the central canal. Commotion of the cord from shock gives rise to immediate and late lesions: the former consist of an intense congestion of the injured portion, with extravasation, myelitis, and a moderate reaction of the neuroglia, the intensity of which is related to the number of hemorrhages. The transition to normal pressure, as in coming out of a caisson, causes gaseous emboli and hemorrhagic infarctions. The latter are due to the rupture of the vessel walls from the enormous dilatation caused by the local development of gas and the afflux of blood from the acutely dilated intestines. The capillary hemorrhages are less important; the larger hemorrhages occur most frequently in the cervical region, rarely extending to other parts of the cord: they also occur chiefly in the gray matter about the central canal or in the posterior horns, occasionally involving the white substance, but leaving the anterior horns intact. Lépine gives no definite answer to the question whether such hemorrhages can originate a true gliosis and thus be transformed into a syringomyelia. His contention that the anterior horns are usually intact and resist the entrance of blood is, however, somewhat too positive. Minor, Fischer and various other writers have reported cases with autopsy where the hemorrhage involved the anterior horns, and other cases are on record where the symptoms warranted the diagnosis of a hemorrhage in this region.

[9] Etude sur les hématomyélies, Thèse de Lyon, 1900.

APRAXIA.

Liepmann[10] has made an exhaustive study of the very interesting case of a man who apparently presented the symptoms of sensori-motor aphasia with profound dementia, although in reality he had only motor aphasia with a fair amount of intelligence, and apraxia, or inability to use the limbs intelligently on the right side. The patient used the right hand exclusively to execute the movements suggested to him, and his acts did not correspond to the commands, so that they were often absurd and ridiculous; and when he used both hands, the left hand could not correct the mistakes of the right. It therefore seemed as if he did not understand what was said to him; but, when the right hand was held, he could execute orders correctly and even work a little with the left hand. The apraxia did not appear in all movements. Those performed by the body as a whole, sitting, rising, walking, etc., were normal; and certain complex movements, usually affected in apraxia, such as buttoning and unbuttoning the clothing, pointing at an object, eating with a spoon, etc., were also normal. The motor disturbance was, however, evident in all co-ordinate movements which demanded the association of coenesthetic representations with optic and acoustic representations, that is, in movements which required the directing action of the whole cortex. Certain other movements, such as indicating a part of the body, were also impaired. The apraxia was limited to the right side only in movements performed by the limbs; in the face it was bilateral, giving rise to paramimia. After very elaborate examinations and tests Liepmann determined that the trouble was not due to any error of identification, to any agnosis or asymbolia from psychical blindness or deafness, nor to any anesthesia, although there was a diminution of sensibility in the limbs on the right side and an inability to determine the position of the limbs with the eyes closed. He believes the apraxia was due to a loss of the representations of movement on the right side, that is, to a loss of the ensemble of coenesthetic, optic and acoustic representations which contribute to the production of a complex movement. It is therefore a motor asymbolia, as distinct from a sensory asymbolia. The motor centre in the cortex may be injured, therefore, so that it no longer receives impressions from the other cortical centres, and yet it may still respond to sensory stimuli coming from the periphery. The lesion, which was probably syphilitic, he believes, spares the central convolutions, but involves the supra-marginal gyrus and the superior parietal convolution, thus separating the central convolutions from the visual and auditory centres. It also must extend into the third frontal convolution and perhaps the

[10] Monats. f. Psych., viii, 15, 102, 182, July, August, September, 1900.

island of Reil, on account of the motor aphasia. The lesion would therefore lie in Flechsig's posterior association centre. The symptom, if the localization be correct, ought to be found much more frequently than at present, considering the comparative frequency of lesions in this region.

HYSTERIA.

Steffens[11] discusses the differential diagnosis of hysteria and epilepsy after a study of several peculiar cases of hysteria. The first case was that of a girl of sixteen, with tubercular heredity, who had previously had enlarged cervical glands, diarrhea and ascites. She entered the hospital with a suspicion of trouble at the right pulmonary apex, irregular fever and decided pain and tenderness over two vertebræ, increased on motion and jarring. The general neuropathic condition favored "spinal irritation" rather than caries, until she began to have headache, vertigo, vomiting, a staggering gait and a slight optic neuritis with ankle clonus. Later, typical hysterical attacks with all of Charcot's characteristic phases and hysterical stigmata led to a correct diagnosis of hysteria, and by isolation and proper treatment she was cured. A second patient had attacks of transitory confusion, genuine attempts at suicide, classical hysterical stigmata (anesthesia, contracted visual field, changes in the reflexes, mastodynia, etc.), unilateral convulsions in which the pupils were dilated and did not react to light, and other attacks with complete loss of consciousness and subsequent amnesia. A third patient was attacked with acute hallucinatory confusion, and convulsive attacks beginning with maniacal excitement, hysterical stigmata during the attacks and disappearing after them, polydipsia and polyuria. Steffens reviews carefully the so-called distinctive symptoms of hysterical and epileptic attacks. The most important is usually considered to be the condition of the pupils, normal in hysteria and dilated and immobile in epilepsy. He finds, on the contrary, not only in the above case, but in a considerable number of others which were undoubtedly hysterical, and were observed by competent men, that the pupils did not react to light. Furthermore, he finds a certain number of cases of hysteria reported, in which one or both pupils did not react during the interval, or where the pupils were unequal. In epilepsy, on the other hand, the pupils sometimes react during the attack. In the hysterical attack, too, the patient sometimes falls suddenly so as to injure herself, and she may even bite her tongue. Sudden pallor, unilateral convulsions, complete loss of consciousness and amnesia were also noted in his cases, and they have been observed repeatedly by others. Hysterical attacks may be brief, and epileptic long; a case of an epileptic seizure lasting eight hours being reported in connection with the cases cited above. Hypnotism may have no influence upon the attack and, if there be no hysterical stigmata, a differential diagnosis is often impossible. Although not observed in his own cases, Steffens cites other cases in which there was incontinence of urine during an hysterical attack. Steffens concludes that both hysteria and epilepsy are caused by disease of the cerebral cortex, whose pathological basis is unknown, that the essential nature of the two affections cannot be distinguished, and that the same marked cause may act merely in different form and different intensity and persistence. In the same attack we may recognize characteristics which seem to be "purely hysterical" and others which seem "purely epileptic."

Parinaud[12] has studied the ocular troubles of hysteria. One of the most distinctive characteristics of hysterical amblyopia is its association with contracture of accommodation, which may determine other symptoms, such as monocular polyopia and micromegalopsia. A concentric limitation of the visual field is one of the most important features of hysterical amblyopia. When this is slight, we must also look for disturbances of accommodation to determine the existence of amblyopia. When central vision is also involved, there may be complete blindness, as great as that due to optic atrophy. The visual field is apt to be more contracted after an hysterical attack, and its extent may sometimes be modified by influencing the accommodation either by lenses or atropine. It may also be greater with moderate illumination than under a bright light, owing to the influence of accommodation. Cutaneous irritation, unless applied to an anesthetic area, may enlarge the visual field. In order to prove the existence of dyschromatopsia from contraction of the visual field alone, the contraction for white must be very marked. The perception of red is the last to be affected in hysterical dyschromatopsia, while it is the first to be affected in dyschromatopsia from tabes or alcohol. The field for red is sometimes greater in hysterical amblyopia than the field for white. Hysterical central scotoma is occasionally, though rarely, found. The acuteness of vision is rarely much diminished, although it is often better in a moderate light than in a bright light. Diplopia is always due to a disturbance of refraction. Even in absolute amaurosis the pupils still react to light. The ocular movements are usually well performed in spite of anesthesia of the conjunctiva and the cornea and the absence of the oculo-palpebral reflex. The lachrymal reflex is often preserved. There is never hemianopsia, and hysterical amblyopia is never attended with changes in the fundus of the eye, unless there be co-existing organic disease of the brain.

JUDGE ELLIOTT, in the Circuit Court, Milwaukee, recently decided that Christian Scientists were not liable to prosecution under the State Medical Law. The court ruled that the Scientists could no more be held for practising medicine when their means for healing was by prayer than could a minister who prayed at the bedside of the sick and received therefor a fee, either directly or indirectly. — *New York Medical Journal.*

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[11] Arch. f. Psych., xxxiii, 892, 929, November, 1900.

[12] Ann. d, oculistique, July, 1900.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of December 18, 1900, the president, Dr. Alfred Worcester in the chair.

Dr. F. S. Newell read a paper entitled

CHOREA DURING PREGNANCY.[1]

Dr. T. M. Rotch: It is evident that chorea may come from different causes, especially from shock or fright, as often shown in children. I could mention a number of such cases that I have seen. On the other hand, certain forms appear to be infectious, as shown by the endocarditis which often develops.

Dr. C. W. Townsend: The cases Dr. Newell spoke of, in which the children as well as the mothers had choreic movements, are interesting, as they would bear out the infectious theory. That so few of the choreas of pregnancy develop endocarditis or are associated with rheumatism is very different from what is the case with children, and suggests that they may be of a different sort, of hysterical origin for instance. I am also struck by the infrequency of cases of chorea during pregnancy as contrasted with its great frequency in children.

Dr. E. Reynolds: It seems to me that the chief point in practice is to remember that while mild cases of the chorea of pregnancy are very mild affairs that terminate with pregnancy, the severe cases, on the other hand, are practically hopeless and not affected by the termination of pregnancy, so that we should not allow a mild case to become severe, and in questionable cases should not defer the stopping of pregnancy too long.

Dr. G. J. Engelmann: I have looked upon the chorea of pregnancy as one of those reflexes to which more attention has been paid in these later years, and in writing on a kindred subject some time ago I paid especial attention to chorea. Since then I have seen two cases. To me they seem not due to anemia or as of infectious origin, but as neuroses — to be compared with the reflex chorea seen in connection with menstrual and pelvic disturbances in young girls, especially at the time of puberty. The per cent. of cases seen harmonizes with the period of growth of woman, being greatest at the establishment of menstruation and dropping to the minimum with the stopping of the menstrual flow. Lately I saw a very violent case in a young girl coming on with a violent menstrual disturbance, the result of a mental strain, which lasted three months. Her chorea ceased with the regulation of her menstrual life. I think that most of the cases occurring in connection with changes in the pelvic viscera, whether pathological or physiological, are reflex as they yield to the removal of the pelvic cause.

[1] See page 397 of the Journal.

Dr. Newell: My reading on the subject leads me to feel that a case which after a time grows worse, is almost always fatal.

Dr. M. H. Richardson read a paper entitled:

REMARKS ON ANESTHESIA — GENERAL, LOCAL AND SPINAL.[2]

Dr. D. W. Cheever: Personally I have never seen a death from ether, and although I have been in a number of tight places, only once has it been necessary to resort to tracheotomy. I have used it in many cases of heart disease. One cause of its good working in such cases, if the operation be short, is that at first ether is a stimulant, next best to alcohol, though after a time this effect grows more feeble. As to spinal anesthesia, what the reader has said about the apprehension on the part of the patient is very important on account of the depressing effect of fear on the vital processes if the operation is to be long and critical. I used to do tracheotomy without an anesthetic, for I thought it safer. In such cases if we are quick, I doubt if the child suffers more than it does from the partial suffocation inherent in the use of chloroform or ether. As regards the freezing mixtures, I have found them fairly satisfactory, but my feeling is that in a long operation we ought to put the patient to sleep on account of the shock.

Dr. Engelmann spoke of operations on the extremities under an anesthesia induced by strong alternating currents.

Recent Literature.

Evans's Obstetrics. A Pocket Textbook of Obstetrics. By David J. Evans, M.D., Lecturer on Obstetrics and Diseases of Infancy in McGill University Faculty of Medicine, Montreal. In one 12mo. volume of 409 pages, with 149 illustrations, partly in colors. *Lea's Series of Pocket Textbooks.* Edited by Bern B. Gallaudet, M.D. Philadelphia and New York: Lea Brothers & Co.

This book is really more than its name, that of a "pocket textbook," would imply, in that the author has produced a creditable work on obstetrics of moderate size and completeness for the use of the medical student. The difficulty of condensing the subject of obstetrics into a small textbook without sacrificing important subjects and necessary details is at once apparent and the author has, we believe, done very well. The book is well written in a clear style, although necessarily much abbreviated, yet the essential points are all taken up and treated in a way sufficiently elaborate to give the average young student a good preliminary knowledge of the subject. The directions for treatment are given in a direct manner and conform, as far as the author goes, with what is generally accepted as proper treatment at

[2] See page 391 of the Journal.

the present time. There are no features in the book which are essentially new, but as a condensed volume for students it is above the average of such works, while it is not comprehensive enough for a complete textbook, or as a reference book for the practitioner.

Diseases of the Anus and Rectum. By D. H. GOODSALL, F. R. C. S. (Eng.), Senior Surgeon (late House Surgeon) to St. Mark's Hospital for Fistula and other Diseases of the Rectum; Senior Surgeon to the Metropolitan Hospital, and W. ERNEST MILES, F. R. C. S. (Eng.) Surgeon (outpatients) to the Gordon Hospital for Diseases of the Rectum; Assistant Surgeon to the Cancer Hospital, Brompton; late Senior Assistant Demonstrator of Anatomy at St. Bartholomew's Hospital Medical School, and House Surgeon to St. Mark's Hospital for Fistula and other Diseases of the Rectum, etc. In two parts (illustrated). Part I. London, New York and Bombay: Longmans, Green & Co. 1900.

This Part I of "Diseases of the Anus and Rectum" consists of chapters upon the Anatomy, General Diagnosis, Abscess, Ano-Rectal Fistula, Recto-Urethral, Recto-Vesical, Recto-Vaginal Fistulæ, Sinus over the Sacrum and Coccyx, Anal Fissure, and Hemorrhoids or Piles.

The authors have given an excellent description of the different diseases about the anus and rectum and have illustrated these conditions by selected cases from their case books. The illustrations are, as a rule, good. They are rather gruesome and are frequently extreme examples of a condition.

The book is one that can be turned to for sound, judicious advice in the treatment of these common affections. The binding of the volume is excellent.

Oral Sepsis as a Cause of Septic Gastritis. "Toxic Neuritis," and other Septic Conditions. With illustrative cases. By WILLIAM HUNTER, M.D., F.R.C.P., Senior Assistant Physician, the London Fever Hospital, etc. London, Paris, New York and Melbourne: Cassell and Company, Ltd. 1901.

This small volume of 30 pages is a bound reprint of an article which appeared in *The Practitioner* for December, 1900, and which has already been noticed in our editorial columns. The title describes the scope and object of the pages. It is an interesting, and on the whole, convincing discussion of the possible importance of septic mouth conditions in the production of various general disorders. It should prove profitable reading to practitioners in any department of internal medicine.

SUTURE OF THE HEART.— According to a report in the daily press the pericardium was opened and a stab wound into the cavity of the left ventricle of the heart closed by three sutures, in a case at the St. Louis City Hospital. The patient lived twenty-four hours.

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PATHOLOGY OF THE JEWISH RACE.

THE relative predisposition of races and peoples to disease in general and to certain diseases in particular is a subject which has not received the study it deserves. With our growing interest in the all-important problem of immunity, we may easily see how essential is the accurate determination of race susceptibility to disease. Various observations and statistics of importance have from time to time appeared, but it is clear that deductions of scientific value cannot be made until a very large number of data are collected and carefully tabulated. Dr. Maurice Fishberg of New York has recently rendered a valuable service in the publication of a statistical paper appearing in the *New York Medical Journal* for March 30th and April 6th on "The Comparative Pathology of the Jews."

It is a matter of common knowledge that the Jews are both a very hardy race, capable of much endurance, and also peculiarly susceptible to certain disorders. Fishberg has analyzed available figures in great detail regarding the longevity of the Jews in various parts of the world, and has formulated statistics regarding various diseases. It is somewhat surprising that in spite of the fact that the Jewish population of the United States is at present estimated to be 1,058,135, no careful study of their racial peculiarities from a strictly medical point of view has been made. In Europe it has been found that the Jews live, on an average, considerably longer than Christians, showing a lower death rate, and an excess of the number of births over deaths. This occurs in spite of the fact that the Jews show a smaller marriage rate, and produce fewer children by each marriage than do Christians. What statistics we have for the United States go to show the same facts. The Jewish population is kept up because of the smaller infant mortality. Fewer are born, but more reach maturity.

The statistics regarding disease susceptibility are of very great interest, though still often difficult of interpretation. It has been found that tuberculosis, pneumonia, nephritis, typhoid fever, malaria and epidemic diseases are less prevalent among the Jews than among Christians. A certain immunity has been observed to plague, smallpox (possibly on account of greater willingness to submit to vaccination), typhus, intermittent fevers, epidemic dysentery and cholera. For example, during a cholera epidemic in Budapest, in 1851, the mortality among the Christian population was 1.85% as against .257% among the Jews, being seven times less. More recent statistics, however, seem to show that the immunity to contagious diseases is now not observable. Tuberculosis remains far less fatal among the Jews than in other races. Interesting figures are those taken from a study of the mortality in one of the most densely inhabited regions of New York City for the six years ending May 31, 1890. It appears that during that period the mortality from consumption reached, among the Irish, 19.44% of the death rate due to all other causes; among the Germans, 14.12%; among the English, 13.04%; among the Russian and Polish Jews, 5.76%. Alcoholism and syphilis are relatively infrequent among the Jews. Gonorrhea, however, appears about equally prevalent among Jews and Christians, which goes to show that freedom from syphilis is not due to greater chastity. Diabetes, on the other hand, is a disease to which Jews are, from the observations of many trustworthy observers, particularly predisposed. The same appears to be true of diseases of metabolism; for instance, gout, gall-stones and nephrolithiasis, chronic rheumatism, some forms of neuralgia and migraine, asthma, pulmonary emphysema, varicose veins, and especially hemorrhoids, arteriosclerosis, and some diseases of the skin. Finally, some authors state that blindness, color blindness, myopia, trachoma, glaucoma and almost all the skin diseases, are more frequent among the Jews than among the non-Jews.

The most conspicuous fact, however, regarding the diseases of the Jew, is the instability of his nervous system, a fact possibly associated with the peculiar stress to which he has been exposed for centuries, as suggested by Oppenheim. His words are:

> The nervous derangements which are the effect of psychic trauma explain to some extent the reason why the Jewish race—after being persecuted and oppressed, mostly only tolerated among the nations, living in peace for short times only, and then again tormented—is suffering in such immense numbers from the neuroses and psychoses, and particularly hysteria.

The organic derangements of the nervous system are apparently not more frequent among the Jews. Minor concluded that this was due to the fact that syphilis and alcoholism were much less common than among Christians.

Fishberg draws the following general conclusions from his study:

> The death rates of the Jews, at all ages, are relatively and absolutely lower than those of the people among whom they live. The marriage rates and birth rates of the Jews are smaller than those of the Christians. The Jews die less often than their neighbors from many of the infectious diseases, particularly epidemic cholera, smallpox, and tuberculosis. Syphilis and alcoholism, and also diseases due in great measure to their poisons, are comparatively rare among the Jews. Diabetes is very frequent among the Jews. All the functional neuroses and psychoses, particularly neurasthenia and hysteria, occur more frequently among Jews than among non-Jews; while all the organic nervous diseases, as tabes, general paralysis, etc., are less frequent, commensurate with the infrequency of syphilis and alcoholism among them. Blindness, color blindness, trachoma and glaucoma, and also varicose veins, particularly hemorrhoids and hernias, are very frequent among Jews. All these peculiarities in the comparative pathology of the Jews are not due to any ethnic, "biostatic," or racial characteristics of a purely anatomical or physiological nature in relation to non-Jews. They have their origin in the past history of the Jews, in their habits of life, and in the fact that syphilis and alcoholism have but rarely been seen among them. Where the Jew is commingling with his Christian neighbors and adopts their customs and habits of life, he sooner or later loses his "racial characteristics," and his comparative pathology presents no special peculiarities.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

The fifteenth annual report of the Boston Instructive District Nursing Association has appeared. It is a small pamphlet, unpretentious in appearance, and its perusal would hardly give one an idea of the work being done by the organization which it represents. Nursing at best, when the glamour and romance have worn off, is not an easy or pleasant employment. The surroundings of a large hospital, the excitement attendant upon the care of patients seriously ill, surgical operations and all the circumstances of active routine, no doubt do much to palliate the unpleasantness of it all. The real test comes, however, when nurses are thrown on their own responsibility, and, without the satisfaction of companionship, are obliged to carry out the details of their professional work. Above all others, the district nurses have nothing to fall back upon but a sense of duty performed, and the feeling of satisfaction which comes with the relief of conditions of distress. There is absolutely no poetry in this; it is simply the hardest sort of work, done almost without recognition under the most difficult possible circumstances. These nurses, of whom there are now fourteen, not only care for the sick poor in their homes, but also instruct the

families they visit to take better care of themselves. The daily routine is as follows: the nurse meets the physician of her district each week day, generally at the place where the calls are left. She usually visits the new cases with him and the old cases which she thinks need his attention, but sometimes she makes the round of visits alone, after obtaining his written or verbal instructions. The rest of the day the nurse spends in visiting old cases, and in revisiting those new cases which need her care.

This is neither exciting nor romantic, but much more important. It is a system which is undoubtedly doing a vast amount of good in the most unassuming possible way. The women who undertake this work accept a life of real self-sacrifice, unalleviated by popular recognition, which ordinarily makes nursing, or any other calling, possible.

MEDICAL NOTES.

COLORADO MEDICAL LIBRARY ASSOCIATION.— The eighth annual meeting of this society was held at Denver, March 20th. The secretary, Dr. Carroll E. Edson, reported that 770 volumes had been added to the library, and that donations had been received from the Denver and Arapahoe Medical Society, of $150; and from Dr. John Boice, of 200 bound volumes of periodicals. The president, Dr. Henry Sewall, spoke on the needs of the library. Dr. Leonard Freeman was appointed to consult with the authorities of the County Hospital regarding some arrangements whereby the resources of the hospital for medical literature might be made available for the Association, and whether a fee on attendance on clinics could be collected from medical students, said fee to be applied to the purchase of medical journals. The election of officers resulted as follows: Dr. Charles D. Spivak, President; Dr. Edward Jackson, Secretary and Treasurer, and C. R. Dudley, Librarian.

A NEW APHRODISIAC. — The latest addition to the list is aphrodisiac yohimbin, the active principle obtained from a plant growing in equatorial Africa. Experiments have been made with this product on frogs and rabbits, and it is stated to produce marked hyperemia of the sexual apparatus. On this ground it is recommended for the treatment of sexual neurasthenia, and also in albuminuria. The ground for its use in the latter condition would seem decidedly uncertain.— *Medical Press and Circular.*

CRITICISM OF THE PRESBYTERIAN HOSPITAL OF PHILADELPHIA.— The Presbyterian Hospital of Philadelphia is being severely criticised in the daily press for refusing admission to a colored woman in labor, on the ground that the hospital did not receive maternity cases. The woman was delivered in the patrol wagon while on the way to the Philadelphia Hospital.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 24, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 61, scarlatina 37, measles 120, typhoid fever 7.

DEATH OF A CENTENARIAN.— Mrs. Sallie Batchelder died in Peabody, Mass., on April 22d at the age of 107. She was born in Chichester, N. H., August 8, 1794. She was the third of a family of fourteen children, of whom two sisters lived to be 93, and two brothers who were twins lived to the ages of 84 and 88 years.

SMALLPOX IN A RAILWAY TRAIN. — It has been extensively reported in the daily press that a woman suffering from smallpox and under the care of a Christian Scientist, travelled by train recently from New York to Southington, Conn., and was driven from the train to the residence of her father in a hack. The next morning the health officer was called in and the character of the disease discovered. As it is stated that the eruption on the forehead had appeared before the patient left New York, it would seem that this exposure of the public would have been avoided by calling in a physician.

NEW YORK.

THE ASSOCIATION FOR THE ADVANCEMENT OF PHYSICAL CULTURE. — The twelfth annual convention of the American Association for the Advancement of Physical Culture was held in New York on April 18th, 19th and 20th, Dr. Dudley Allen Sargent, of Harvard, presiding. In a paper on "The Need of Physical Training in Our Public Schools," Dr. Frederick J. Simpson, of Hartford, expressed the opinion that the neglect of the physical well-being of children attending school has resulted in an increase in insanity and a decrease in the birth rate throughout the United States. He advocated that in the education of the young less time should be devoted to study and more attention given to physical development. In a paper on "Ideals of Physical Training," Dr. Sargent deplored the practice of college athletes to devote all their energies to some special line of powers, instead of striving for the symmetrical development of their bodies. It is not, he said, a runner, jumper, boxer, oarsman or gymnast we would produce, but the highest type of physically perfected man. The breakdowns of athletes so frequently noted after they had com-

menced their life work he attributed largely to the neglect to keep themselves in condition. Dr. J. H. McCurdy, of the Young Men's Christian Association of Springfield, Mass., read a paper in which he gave the results of an extended series of observations on the effect of muscular effort on the blood and on blood pressure. Moderate exercise, he had found, causes an increase in the red corpuscles and a strengthened pulse, while exercise carried to excess reduces the number of red corpuscles and the tone of the pulse. Dr. Franz Boas, of Columbia University, was chairman of the Section on Anthropometry, in which papers were read by himself, Dr. Sargent, Dr. H. G. Beyer, of the United States Naval Academy at Annapolis, Dr. J. McK. Cattell, of Columbia, and Dr. Edward Hitchcock, of Amherst.

Equitable Enforcement of Medical Claim. — Dr. J. F. Sherman has finally succeeded, after prolonged litigation, in securing the application of a portion of a testamentary trust fund, provided by the late Francis N. Skuse for the support of his son, toward the payment of his (Dr. Sherman's) claim for medical services rendered the beneficiary upon his own request. The Court of Appeals, affirming the claim of the Appellate Division of the fourth department of the Supreme Court, holds that such a claim may be enforced in equity to the extent of the unexpended income in the hands of the trustees applicable to his support, when it appeared that the beneficiary had become insolvent, and it did not affirmatively appear that the trustees had furnished him with all that was necessary in respect to medical attendance. Under such circumstances, the court held, it might be assumed that the services were rendered with the knowledge and tacit consent of the trustees. The trustees might be regarded as mere custodians of the unexpended income in their hands, which it was their duty to apply to the payment of necessaries furnished to them for the beneficiary, or to the beneficiary himself with their knowledge and consent; and which equity would regard as having been so applied, the court simply directing a formal payment out of the fund, which the trustees should have made without such direction.

Christian Science and Osteopathy at Albany. — The Legislature has adjourned without passing the Anti-Christian Science bill. While this is a matter of regret, the community is to be congratulated on the fact that it also failed to pass the bill to license osteopaths, which would have flooded the State with quacks.

Appropriation for Craig Colony. — Governor Odell has approved the act appropriating $125,000 for improvements at the Craig Colony for Epileptics.

Medical Men in the Revolution. — At the celebration of the 126th anniversary of the Battle of Lexington by the Society of Sons of the Revolution, at Delmonico's, Dr. Sidney H. Carney, Jr., read a valuable paper on "Medical Men in the Revolution."

Christian Science. — In a recent paper before the Baptist Ministers' Conference, denouncing Christian Science, the Rev. Albert G. Lawson incidentally compared the name of the sect to that of the guinea pig, an animal which, he said, does not come from Guinea and is not a pig.

Diphtheria in the Bronx. — On account of the prevalence of diphtheria in the vicinity, the public school, and the parochial and Sunday schools at High Bridge, Borough of the Bronx, have been ordered closed by the Board of Health.

Miscellany.

THE SANITARY CONDITION OF HAVANA.

Major W. C. Gorgas, the chief sanitary officer of Havana, in his report to the Adjutant General, accompanying the vital statistics for the month of March, calls attention to the continued excellent sanitary condition of the city as shown by the general death rate. The general death rate, 26.28, it will be seen, is considerably lower than that of any March since 1889. The lowest previous rate for the preceding eleven years being that of 1893, when we had 27.60; the highest that of 1898, the last year of Spanish occupation, when we had 78. It will be seen from this, that we have had a steady decrease since the American occupation, and that we compare favorably with many other of the larger cities of the world.

According to Marine Hospital reports, Liverpool, for the week ending February 23, 1901, with a population of 668,645, had 338 deaths, being a death rate of 26.26; Dublin, for the week ending February 16, 1901, with a population of 349,594, had 235 deaths, which gives a death rate of 34.84 per thousand; Marseilles, for the month of January, 1901, estimated population 447,344, deaths 1,181, giving death rate 31.20.

The number of deaths for March is considerably larger than that for February, due to the increased number in the diarrheal diseases of children, and an increase of pulmonary troubles generally. As these causes effect the Cuban population mostly, it will be seen that the increase is entirely among the Cubans. The Cubans in February, 1901, had 305 deaths, and in March, 1901, 444.

Particularly attention is called to the condition of the city with regard to yellow fever. The report shows 4 cases and 1 death. The only two years since 1889 showing as small a number of deaths as this were 1892 and 1899, when there was 1 death in March for each of these years. Of these 4 cases reported in March, 1901, only 1 took

sick during March, the other 3 were taken sick during the latter part of February, and remained over into March. In 1900, during March, there were 11 cases and 4 deaths.

Previous to the year 1899, no record was kept of the number of cases, so that no comparison can be made. As a matter of fact, there was only 1 case of yellow fever in Havana since the 1st of March, and since March 23d the city of Havana has been entirely free from that disease. This is the first time this has occurred since June, 1899. There were two occasions in 1900 when the city went for a few days with no fever, but none since the time mentioned that it has been free from fever as long as at the present. Major Gorgas feels very much encouraged at the prospects for the summer.

He thinks the present freedom from fever is in part due to the systematic and extensive way in which they have been killing the mosquitoes for the last month. He has the greatest hopes of destroying the foci as they appear by systematically killing the mosquitoes over a large area around each focus as it occurs.

He is inclined to think that they have been free from fever for a longer time than has ever occurred in Havana before. Our records show longer periods in which no fever was reported in the early part of the year 1899, but at that time physicians had not learned to recognize the milder types of yellow fever, and were much less careful about reporting them, so that a case of yellow fever, which is now promptly recognized and reported, would then have been passed over.

The condition with regard to smallpox is equally satisfactory, and, while this disease is occurring in every part of the United States, in Havana there has not been a single case since August.

On March 3d, the examination of sputum for tuberculosis was begun, and during the month 70 examinations were made.

The sanitary authorities certainly deserve congratulation on the excellent showing made for the enlightened methods of sanitary administration introduced by the medical department of the U. S. army in Havana. The good health of the city is certainly a definite result of the American Protectorate, and in marked contrast to the conditions which prevailed under the Spanish Régime.

Correspondence.

FORMALDEHYDE GAS IN DIPHTHERIA.

BOSTON, April 15, 1901.

MR. EDITOR: — In a short communication which appeared in the JOURNAL, Vol. CXXXVI, No. 23, June 10, 1897, I called attention of the profession to the use of formaldehyde gas in the treatment of diphtheria, especially in cases in which the disease is located in the nasal cavities or their vicinity, and particularly in children. The plan then adopted consisted in placing the patient temporarily in a small room, the air of which was permeated with an uncertain amount of the vapor produced by the clumsy lamp which was the predecessor of the improved apparatus of today. I was surprised to find that a tender child could not only breathe the air thus charged with formaldehyde gas, which was very irritating to the eyes, nose and throat of the attendants, but that after a long persistence of the diphtheria bacillus in the secretions of the nose, the cultures rapidly became less abundant, and within a few days were negative. This was verified by control.

Since that time, I have continued to employ this method of treatment with most satisfactory results. The only material variation in its use being the entire abandonment of all forms of apparatus for the generation of free formaldehyde gas, by the substitution of a dilute solution of the gas in water, which is now to be easily obtained under a variety of names; formaldehyde, formaline, etc., all of which I suppose to be the same substance placed upon the market by different manufacturers. I have observed no variation in the effect produced.

Further experience has proved that the exposure of the patient to the continuous inhalation of the vapor of formaldehyde is a more efficacious form of germicidal treatment than that previously advocated in the cases earlier reported. I have found that the patient with diphtheria may remain constantly for days or even weeks in an atmosphere which is saturated with the vapor of formaldehyde derived from the evaporation of a 2 % solution of the formaldehyde of trade, not only without detriment, but absolutely without discomfort. Towels saturated with this solution are suspended in various parts of the room, and a double sheet arranged in the entrance to the sick room, where continual ventilation affords a constant supply of fresh air, which by its contact with the towels becomes charged with a most potent disinfectant. Each inspiration thus carries with it a volume of formaldehyde reaching to the utmost circulation of the air within the lungs, and the intervening respiratory tract is constantly bathed with an ebb and flow of the gas.

It is not necessary to present an array of cases in support of the treatment here advocated, but perhaps two may be mentioned. The first is that of a frail rachitic girl afflicted with organic valvular lesion of the heart, due probably to longstanding chorea from which she still suffers. In November last she was prostrated by an attack of diphtheria, of a very severe character. Antitoxine was freely employed at once, and on the succeeding day, and the culture sustained the provisional diagnosis. The strictest precautions as to local disinfection, isolation, etc., were rigidly carried out. The seat of the local lesion was upon the roof of the mouth, the soft palate, and the pharynx, chiefly on the right side. A large slough was formed, which was later discharged. Nourishment returned through the nose, and there was severe pain in the ear, and albuminuria soon appeared. This was followed by almost complete bilateral loss of sight, without physical ocular lesion. Somnolence and stupor succeeded, the child could take hardly any nourishment, an acrid and extremely offensive discharge flowed constantly from both nostrils, and the patient showed signs of cardiac failure; the skin became waxy and dull, the prostration increased, and death seemed imminent.

In the meantime the throat had become clear of bacilli, but they were still found in large numbers in the discharge from the nostrils, which were so occluded as to render respiration by these channels impossible. At length, however, there was a free discharge of thick sloughing matter from the nose, and it was possible for the child to breathe by this route. Applications of soothing character had constantly been made to the nostrils, but had seemed to have no effect until the free passage of the air loaded with formaldehyde was possible, when the bacilli soon disappeared and the Board of Health declared the disease at an end. The other concomitant symptoms slowly subsided, and the child has recovered her former state of health. The final disappearance of the bacilli corresponded so closely to the freeing of the nasal passages that the effect seemed more than a coincidence. There were no symptoms of poisoning, nor even of discomfort from the prolonged

breathing of formaldehyde gas, and no bronchial irritation remained after its use.

The second case which I will mention affected a teacher in a public school, who has long been subject to recurrent attacks of "erysipelas" [from her own statement]. The cause of her present illness was really erysipelas, located upon the nose, face, lips, and extended later to the neck, chin and to the border of the hair, where it was arrested by a fence of contractile collodion, across which it did not pass. On the second day, a culture was taken from her nostrils with the desire to obtain the bacterium of erysipelas. What was my surprise to find an almost pure culture of diphtheria germs, some of them of exquisite form, for the opportunity of seeing which, I am under great obligation to Dr. Hill and his assistant at the laboratory of the Board of Health. Formaldehyde inhalation was at once adopted. In this patient, also, the nostrils were closed by the great swelling caused by the erysipelas. There were in all the course of the case absolutely no clinical symptoms of diphtheria, but the bacilli continued present in the discharge. When the erysipelas had so far subsided as to allow nasal breathing, the discharge at once became less, and in a short time the bacilli disappeared from the cultures, and the patient soon entirely recovered. In this case there was no suspicion of infection from diphtheria, and it is an interesting question how long this patient may have been carrying active infection into her schoolroom without any appearances of the disease in her own person.

The above and other similar experiences have convinced me that, in cases of diphtheria, we have in the vapor of formaldehyde a means of obtaining a germicide action upon the surfaces chiefly affected by the bacilli, which is obtainable in no other way; and which may be thus continuously exposed to efficient disinfection by the most active parasiticide at present known. I think it doubtful if it has any action upon the toxin already formed in the course of the disease, but its effect has uniformly been to destroy the germs upon the surface of the mucous membranes. A chief consideration for its employment is found in its absolute absence of danger to the patient, even when the air of the sickroom is almost intolerable to one entering the apartment. This quality would certainly be of service in cases treated at home; without trained nurses or the benefits of hospital wards. The protection to others is much greater if formaldehyde is used in the care of the patient. I have not been able to find any record of the use of formaldehyde in this way, which antedates my former communication, and only few allusions to the subject in any way. The only reference of this kind which I have seen was kindly given me by Dr. Hill, from the "Tenth Annual Report of the State Board of Health of Maine," issued July 27, 1898, through its secretary, A. G. Young, M.D., as follows. "While formaldehyde gas is irritating to the eyes and nose, the general testimony of those who have worked with it and have been much subjected to its influence is that no permanent ill results follow ordinary exposure to it."

"After disinfection of rooms with formaldehyde, no poisonous substance remains. The odor is comparatively transient and but slightly disagreeable. A temporary airing renders the room habitable again."

"Various authors have recommended formaldehyde as an agent for the local treatment of diphtheria, whooping cough, influenza, tuberculosis and other diseases by inhalation or otherwise."

Dr. C. B. Smith states that he is "satisfied that constant breathing of formaldehyde vapor had been a valuable aid in preventing extension of membrane . . . although antitoxine had been used early and in considerable doses to neutralize the toxin."

Dr. Hill has suggested that the constant inhalation of formaldehyde might be of service in tuberculosis, especially in the laryngeal form of that disease, in certain affections in or about the tonsils, nasopharynx and about the eustachian tube. I think it might be employed in proper dilution as a local application to some of the forms of destructive or malignant growths in the same region. Its action is that of drying or mumifying the tissues to which it is applied, with destruction of the superficial structures. It would also seem to be appropriate to the treatment of scarlet fever, ozena or other infective conditions of the throat, pharynx and nose, in relation to the extension of the disease to the middle ear, with all that this implies.

Should the claim here presented as to the influence of formaldehyde gas as a valuable aid in the treatment of diphtheria in locations not accessible to topical applications be doubted, the favorable effect upon the surroundings of the patient should still lead to its employment. The putrid and almost insufferable odor which accompanies the severer forms of diphtheria is at once destroyed, vermin will not remain in its presence, and the care of the patient is rendered far less dangerous and immensely less disagreeable. Flies which penetrate to the sickroom have been observed to fall dead before reaching the opposite side of the room. This fact alone would seem to be a recommendation for its use from the increased comfort afforded the patient, particularly in cases which cannot receive the benefit afforded by treatment in hospital.

Yours respectfully,

ALBERT N. BLODGETT, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 13, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . .	3,437,202	1,413	484	26.47	14.51	3.54	.99	3.32
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	469	142	15.98	14.48	1.27	1.06	1.49
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	211	52	17.53	14.22	—	.47	—
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . .	352,387	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	132	42	23.46	22.71	1.51	6.81	—
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—
Providence .	175,597	62	17	9.66	22.54	—	1.61	1.61
Boston . . .	560,892	234	57	25.62	20.50	4.27	.42	2.97
Worcester. .	118,421	31	9	16.15	16.15	—	—	3.22
Fall River. .	104,863	—	—	—	—	—	—	—
Lowell . . .	94,969	40	11	10.00	25.00	—	2.50	—
Cambridge .	91,886	—	—	—	—	—	—	—
Lynn. . . .	68,513	21	5	9.52	23.80	—	—	9.52
Lawrence . .	62,559	20	9	20.00	25.00	—	—	—
New Bedford.	62,442	18	4	22.20	5.55	5.55	—	—
Springfield .	62,059	12	4	41.65	—	—	—	—
Somerville .	61,643	21	4	19.04	38.08	—	—	—
Holyoke . .	45,712	16	5	18.75	12.50	—	—	—
Brockton . .	40,063	11	6	45.45	—	—	—	—
Haverhill . .	37,175	12	3	16.66	41.66	—	—	—
Salem . . .	35,956	13	3	—	—	—	—	—
Chelsea. . .	34,072	24	3	20.85	—	—	—	—
Malden. . .	33,664	8	2	12.50	—	12.50	—	—
Newton. . .	33,587	6	1	16.67	16.67	—	—	—
Fitchburg. .	31,531	9	—	11.11	22.22	—	—	—
Taunton . .	31,036	12	3	—	—	—	—	—
Gloucester .	26,121	7	2	28.56	—	—	—	—
Everett. . .	24,336	10	4	10.00	—	—	—	—
North Adams	24,200	6	3	33.33	16.67	16.67	—	—
Quincy . . .	23,899	1	—	—	—	—	—	—
Waltham . .	23,481	3	1	—	—	—	—	—
Pittsfield . .	21,766	3	—	100.00	—	—	—	—
Brookline . .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	9	5	22.22	11.11	—	—	—
Medford . .	18,244	6	3	33.33	16.67	—	—	16.67
Newburyport	14,478	—	—	—	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,876; under five years of age 876; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 652, acute lung diseases 445, consumption 333, diphtheria and croup 66, diarrheal diseases 49, scarlet fever 71, influenza 10, typhoid fever 34, whooping cough 24, measles 13, cerebro-spinal meningitis 15, smallpox 14.

From whooping cough, New York 10. Philadelphia 6, Pittsburg 4, Boston, Worcester, Chicopee and Medford

1 each. From cerebro-spinal meningitis, New York 7, Pittsburg 1, Brockton 3, Gloucester 2, North Adams and Pittsfield 1 each. From scarlet fever, New York 50, Philadelphia 6, Pittsburg 2, Boston 10, New Bedford, Malden and North Adams 1 each. From typhoid fever, New York 14, Philadelphia 5, Baltimore 1, Pittsburg, 9, Providence, Boston, Lowell, Chelsea and Clinton 1 each. From measles, New York 10, Boston 3. From smallpox, New York 11, Pittsburg 1, Boston and Fitchburg 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,999, for the week ending March 30th, the death rate was 19.7. Deaths reported, 4,450; acute diseases of the respiratory organs (London), 363, whooping cough 146, diphtheria 59, measles 120, fever 25, scarlet fever 34.

The death rate ranged from 13.0, in West Ham, to 29.7, in Plymouth; Birkenhead 14.0, Birmingham 23.4, Blackburn 17.6, Bolton 18.5, Bradford 16.6, Brighton 14.6, Bristol 21.5, Burnley 17.7, Cardiff 16.9, Croydon 12.8, Derby, 21.4, Gateshead 20.4, Halifax 17.1, Huddersfield 23.2, Hull 21.4, Leeds 18.7, Leicester 17.4, Liverpool 28.1, London, 18.4, Manchester 22.0, Newcastle-on-Tyne 23.2, Norwich 21.5, Nottingham 22.9, Oldham 20.1, Portsmouth 18.1, Preston 17.8, Salford 22.4, Sheffield 20.3, Sunderland 21.7, Swansea 18.0, Wolverhampton, 19.6.

METEOROLOGICAL RECORD.

For the week ending April 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....7	29.37	44	47	40	98	—	99	E.	N.E.	22	6	R.	R.	—
M...8	29.56	42	44	40	92	88	90	N.	N.	10	9	R.	O.	.06
T... 9	29.68	42	44	40	88	—	94	N.	N.	8	9	O.	R.	.13
W..10	29.85	44	49	40	88	79	84	N.	N.	15	17	O.	O.	.14
T...11	30.03	42	46	38	69	56	62	N.	N.E.	16	16	O.	O.	T.
F..12	30.17	45	54	36	30	34	32	N.E.	E.	16	3	C.	C.	O.
S...13	30.15	46	52	40	29	44	36	N.	E.	9	7	C.	C.	O.
☞	29.83		48	39			71							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Medical Library Building, 8 The Fenway, on Saturday, April 27, 1901, at 8 P.M.

Papers: "The Teaching of Therapeutics," by Dr. Franz Pfaff.

Discussion by Drs. F. C. Shattuck, J. J. Putnam, T. M. Rotch, F. G. Wheatley, Edward Reynolds, E. O. Otis and R. W. Lovett.

Business: Report of the librarian and treasurer; election of officers; appointment of delegates to the annual meeting of the American Medical Association; appointment of a committee to consider the advisability of establishing an Academy of Medicine. Supper after the meeting.

HOWARD A. LOTHROP, Secretary,
H. L. BURRELL, President,
10 Marlborough Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, CENSORS' EXAMINATION.—The censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, May 9, 1901, at 2 P.M.

Candidates should make personal application to the Secretary, and present their medical diploma, at least three days before the examination.

For further particulars apply from 2 to 3 P.M. to

HOWARD A. LOTHROP, M.D., Secretary.
10 Marlborough Street.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, May 1, 1901, at 8.15 o'clock.

Papers: "Strangulation of the Testis by Torsion of the Cord," by Dr. C. L. Scudder; "Report of Two Cases of Strangulation of Intestine by Bands," by Dr. J. W. Elliot; "Report of a Case of Intussusception," by Dr. F. G. Balch.

F. G. BALCH, M.D., Secretary.
279 Clarendon Street.

RECENT DEATHS.

GEORGE COGSWELL, M.D., M.M.S.S., died in Haverhill, April 21, 1901, aged ninety-three years.

BOOKS AND PAMPHLETS RECEIVED.

Massage in Raynaud's Disease (Symmetrical Gangrene). By Douglas Graham, M.D., of Boston, Mass. Reprint. 1901.

Two Unusual Cases of Surgery of the Trachea. By W. S. Jones, M.D., and W. W. Keen, M.D., of Philadelphia. Reprint. Illustrated. 1899.

Progressive Pernicious Anemia. By Alfred Stengel, M.D., of Philadelphia; Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

Some Notes on the Treatment of Rheumatism. By Alfred Stengel, M.D., of Philadelphia; Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

The Endowment of Medical Colleges. By W. W. Keen, M.D., LL.D., President of the American Medical Association at the meeting in Atlantic City, June 5, 1900. Reprint 1900.

Chronic Urethritis of Gonococcic Origin. By J. De Keersmaecker and J. Verhoogen. Translated and edited with notes by Ludwig Weiss, M.D. New York: William Wood & Co. 1901.

Aneurism of the Arch of the Aorta, with Rupture into the Superior Vena Cava. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Reprint. Illustrated. 1900.

Massachusetts Infant Asylum. Thirty-Fourth Annual Report of the Directors Presented to the Corporation at the Annual Meeting, February 19, 1901. Reprint. Brookline: The Riverdale Press. 1901.

The Feeding of Infants. Home Guide for Modifying Milk. By Joseph E. Winters, M.D., Professor of Diseases of Children, Cornell University Medical College. New York: E. P. Dutton & Co. 1901.

Some Remarks Upon Digitalis Treatment in Chronic Disorders of the Circulation, and Especially Upon the Continuous Use of Digitalis. By Medicinalrat J. Groedel, M.D. (Bad Nauheim). Reprint. 1900.

Hygiene and Public Health. By Louis Parkes, M.D., D.P.H., London University and Henry Kenwood, M.B., D.P.H., F.C.S. Illustrated. London: H. K. Lewis. Philadelphia: P. Blakiston's Son & Co. 1901.

A Review of the History of Cardiac Pathology, with Especial Reference to Modern Conceptions of Myocardial Disease. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Reprint. 1900.

Traumatisms Inflicted by Animals. By R. Harvey Reed, M.D., of Rock Springs, Wyoming, Division Surgeon Union Pacific Railroad; Emeritus Professor Principles and Practice of Surgery and Clinical Surgery, Ohio Medical University. Reprint. 1900.

Treatment of Prostatic Hypertrophy. By Parker Syms, M.D., Clinical Professor of Surgery in the University and Bellevue Hospital Medical College; Surgeon to Lebanon Hospital; Member of the New York Surgical Society; Member of the American Medical Association; Member of the New York State Medical Association. New York City. Illustrated. Reprint. 1900.

International Clinics. A Quarterly of Clinical Lectures and Especially Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Vol. I. Eleventh series, 1901. Philadelphia: J. B. Lippincott Company. 1901.

Original Articles.

CONTUSIONS OF THE ABDOMEN.[1]

BY CHARLES L. SCUDDER, M.D., BOSTON,

Surgeon to Out-Patients at the Massachusetts General Hospital; Assistant in Clinical and Operative Surgery, Harvard Medical School.

ACUTE abdominal emergencies command the attention of physicians and surgeons alike. The subject which I have the privilege of presenting for your consideration and discussion this evening, "Contusions of the Abdomen," embraces a highly important group of acute abdominal emergencies due to traumatism.

There being no external wound, the physician is first summoned. Upon him rests grave responsibility, for the mortality in these cases is very great — deplorably great. Many cases are fatal if left to themselves and the physician. Surgical intervention, to be successful, must be early, perhaps before a diagnosis is completely made. The physician must be on the alert to the proper interpretation of the signs immediately succeeding the trauma. Patients of this class, who are ignorantly watched, frequently die. Few, even with an hospital experience, meet many of these emergencies. It is for this reason that I have attempted to present this subject in a somewhat systematic fashion, that we may review the facts as they exist today in these important cases. It is impossible to present here, in brief space, all the evidence for and against the views expressed. The evidence presented in literature has been carefully studied, and the following observations seem reasonable in the light of our present knowledge.

INJURIES TO THE URETER.

Rupture of the ureter following a contusion of the abdomen is a rare injury. That it may happen has been demonstrated by the 2 reported cases of Poland and Mackenzie.

Rupture of the ureter is caused either by compression of the abdomen, forcing the ureter against the transverse processes of the third, fourth and fifth lumbar vertebræ, or by traction on the ureter, tearing it at its two most fixed portions. The two fixed portions of the ureter are a little below the pelvis of the kidney and at the brim of the bony pelvis. All ruptures are above the true pelvic brim. Tuffier's experiments and Poland's case confirm these observations.

Twenty-three cases are recorded in medical literature as rupture of the ureter following abdominal contusion. Ruptures of the pelvis of the kidney and of the kidney tissue proper have been improperly reported as ruptures of the ureter. Of the 23 recorded cases, 12 have some good pretension to being classified as injuries to the ureter proper. Of these 12 cases, 5 presented contracted ureters, associated with hydronephrosis following trauma. Five were very probably ruptures of the ureter, 2 cases proved without any doubt to have been cases of ureteral rupture.

The general symptoms of shock may be present. These may subside within a few hours. If no lesion of an abdominal organ complicates ureteral rupture, no very grave symptoms will appear. If, after the subsidence of shock, a little blood appears in the urine, it is evidence of injury to the genito-urinary tract. If the amount of blood is small, perhaps only an occasional tiny clot, the suspicion should be great of rupture of the ureter. If, along with this very slight and intermittent hematuria, there is a persistent pain in the side, the evidence for rupture of the ureter is still stronger. The pain may be associated with local tenderness over the ureter. Transient hematuria may easily be overlooked.

If the ureter is torn across, a retroperitoneal accumulation of urine will form. This tumor of urine and blood does not appear for several days. Upon its recognition the diagnosis of injury to the pelvis of the kidney or ureter can be made. This tumor can be palpated through the anterior abdominal wall. Seven days is the shortest time for the development of this retroperitoneal fluid tumor. It is impossible to distinguish clinically between a ruptured pelvis of the kidney and a rupture of the ureter.

If there is complete prolonged obstruction of the ureter, an atrophy of the kidney will occur. If there is partial obliteration of the ureter, and the patient lives, after months or years, a renal abscess, a pyo- or hydronephrosis or a cystic kidney will form.

Wounds of the ureter have very little tendency to spontaneous repair. Wounds of the kidney, on the other hand, heal without great extravasation of urine.

If there is no associated serious injury, and if the peritoneum is uninvolved near the ruptured ureter, there is no especial danger to life in these cases. If the peritoneum is involved, extravasation of urine and blood into the peritoneal cavity adds greatly to the gravity of the accident. It is characteristic, then, of injuries to the ureter that the symptoms which will assist in localizing the lesion are often delayed in appearing. The delay in some cases may be due to the fact that the injury to the ureter is primarily a bruising, which subsequently ruptures through necrosis of the ureteral wall.

As yet no surgical treatment has been attempted upon the ureter itself. When cases are seen early after the injury, immediate suture or anastomosis is the ideal treatment.

After infection has occurred in these cases of retroperitoneal accumulation of urine and blood from ureteral rupture, it is extremely difficult to find the rupture in the ureter. Even if it could be found easily, it is questionable whether success would attend any attempt at anastomosis under the existing septic conditions. Lumbar incision and drainage is indicated in these cases. Nephrectomy should be the secondary operation. Puncture and aspiration of these retroperitoneal cysts

[1] Read before the Surgical Society of the Buffalo Academy of Medicine, April 2, 1901.

is a measure of doubtful curative utility, although it has been successful in a number of cases.

RUPTURE OF THE URINARY BLADDER.

Since the monograph by Rivington, in 1884, nothing more than isolated cases and groups of cases has appeared in medical literature upon this subject.

Rupture of the urinary bladder is infrequently seen. It follows some kind of injury to the lower abdomen. It is frequently met with in connection with fracture of the pelvis. Uncomplicated cases are unusual. The mortality is large. The rupture in these uncomplicated cases takes place at the posterior and upper part of the bladder and in a vertical direction, if the rupture is intraperitoneal. If the rupture does not pass entirely through the muscular wall of the bladder at the time of the accident, no very acute symptoms will appear. At the time there will be a delay in the appearance of these symptoms until the necrosis of the bladder wall completes the perforation. Hogerstedt reports a case in which the delay was three days.

The following initial symptoms of rupture of the bladder are common to both the intra- and extraperitoneal forms, namely: Pain in the abdomen referred to the hypogastrium or umbilicus; a feeling of something having given away within the belly; difficulty in standing and walking; a certain amount of shock or depression; nausea; rectal tenesmus; temporary relief to the desire to make water, followed by a more urgent desire, but inability to do so; catheterization, bringing away blood or bloody urine or nothing at all. The patient may come to the surgeon complaining of retention of urine, so-called. Suppression of urine if present may be reflex and does not prove a bladder rupture to have occurred.

It is sometimes difficult without laparotomy to distinguish between intra- and extraperitoneal rupture. The intraperitoneal ruptures are attended with the most severe symptoms of shock, and peritonitis appears usually after a few hours

A few cases have been recorded in which clear urine, not bloody, has been drawn by catheter and yet the bladder has been ruptured. The catheter may pass beyond the bladder into the abdominal cavity if rupture is present.

In extraperitoneal ruptures the symptoms of peritonitis will not be present unless the peritoneum has been injured by the violence which occasioned the rupture of the bladder or becomes involved secondarily, by urine under it or by infection through the sloughing sub-peritoneal tissues consequent upon extravasation of urine. Sooner or later, appear signs of septicemia.

Now, if the bladder is emptied by catheter and a measured quantity of warm boracic acid solution injected, if all injected water returns through the catheter, this is pretty good evidence that the bladder is intact. If there is intraperitoneal rupture the patient may feel the injected water enter the abdomen.

Walsham has once injected the bladder, following contusion of the abdomen, with air, as Keen has suggested. The escape of air into the general peritoneal cavity being recognized, it was concluded that an intraperitoneal rupture of the bladder existed, and such was found to be the case at operation. Free fluid in the abdomen will suggest intraperitoneal rupture. Unilateral hypogastric tenderness and tumor will suggest extraperitoneal rupture. Treatment should remove the extravasated urine, render clean the peritoneum or the extraperitoneal cavity, close the intraperitoneal bladder wound, if possible, and temporarily drain the bladder. Suture of the extraperitoneal bladder wound should not be attempted. If there is doubt as to whether the rupture is extra- or intraperitoneal, the abdomen should be opened. The Trendelenberg position and the rectal bag will facilitate the suture of intraperitoneal ruptures.

RUPTURE OF THE LIVER.

It is often associated with lesions of other organs. A blow upon the lower right thorax and falls from a height are the common causes of hepatic rupture. A very small wound of the liver may cause fatal hemorrhage. A large wound of the liver is, of course, most serious. Of 543 cases of injury to the liver more than one-half died within the first twenty-four hours of hemorrhage. Wounds of the liver have only a slight tendency to cease bleeding spontaneously. Usually the right lobe is torn upon its convex surface, and in an anteroposterior direction. The shock present is often out of all proportion to the hemorrhage.

Pain in the abdomen, both local and general, is severe and continuous rather than intermittent. The pain may radiate toward the umbilicus and the right shoulder. Jaundice may appear after a few days. It is rare before the second day. Bile may be found in the urine.

In the treatment of wounds of the liver, suturing, cauterization and tamponing have been successfully employed. Sutures may tear through the liver tissue, although often holding well. Tamponing will be of service in deep tears. Cauterization is adapted to superficial wounds.

The healthy gall bladder is rarely torn.

CONTUSIONS OF THE KIDNEY.

Maas's collection of 71 recorded cases of contusions of the kidney prior to 1878, combined with Spencer's collection of 118 cases reported between 1878 and 1896, make a total of 189 cases of what must be regarded as an unusual injury.

Rupture of the kidney due to trauma is unilateral; occasionally only is it bilateral. The rupture is rather constantly transverse to the long axis of the kidney, in the grain of its development, so to speak.

The following have been some of the accidents causing contusion of the kidney: Falls from a height striking the loin upon a blunt object like a beam, a fence rail, or a stone; a squeeze from a

moving car; compression of the abdomen by a heavy cart wheel; kicks by a horse.

The damage done may be a simple contusion of the kidney substance, a tearing of the capsule overlying the lacerated kidney, a rupture of the pelvis of the kidney, a tearing of the renal vessels, or a complete crushing of the kidney. Various combinations of these lesions may be found in any individual case. If the kidney is simply contused, hemorrhage will take place within the kidney capsule; if the renal capsule is torn, hemorrhage will occur into the perinephritic tissues forming a pseudo-hydro-hematonephrosis; if the peritoneum is torn, it is possible for both urine and blood to accumulate within the abdominal cavity.

Herzog finds that in falls and blows upon the lumbar region, the hilus of the kidney is torn, and that retroperitoneal hemorrhage is present. On the other hand, he finds that in crushes from in front, the kidney is torn anteriorly and crushed, and that hemorrhage usually takes place into the general peritoneal space. Keen has called attention to the fact of a greater frequency of intraperitoneal rupture of the kidney in childhood, as compared with that in adult life. This he thinks due to the late development normally of perinephritic fat tissue. In childhood the peritoneum lies directly in contact with the anterior surface of the kidney with no intervening fat tissue; hence the greater liability to involvement of the peritoneum in rupture of the underlying and contiguous kidney substance.

Hematuria is a sign of injury to the kidney. Of 189 cases of kidney subcutaneous injury, hematuria was absent in only 10 cases. In these 10 cases the absence of hematuria was occasioned by a clot in the ureter, a thrombosis of renal vessels, associated with considerable damage to the kidney substance, and a pre-existing stricture of the ureter. These are rather exceptional conditions, but they must be reckoned with. One case should be mentioned in this connection, that of Newman, in which, following a blow upon the loin, hematuria was present. In this instance no rupture of the kidney existed, but the history of the case determined that the hematuria was due to a pre-existing papilloma of the bladder.

Hematuria may be absent immediately after the accident and appear after several days.

Anuria sometimes follows an injury to one kidney, but is more likely to exist after an injury to both kidneys.

Pain in the region of the injured kidney is usually constant and pretty severe. It may radiate toward the groin.

In extreme laceration of the kidney, the force may have been so great as to cause lesions of other important organs, and all the evidences of kidney lesion may be so concealed as to render it impossible of recognition.

Hemorrhage and sepsis are the two dangers to be feared after rupture of the kidney. If the peritoneum is torn over the injured kidney, the hemorrhage is not restrained by the pressure of perinephritic tissues. The patient may show evidences of intra-abdominal hemorrhage. An immediate laparotomy and probably a nephrectomy will be necessary in order to check this hemorrhage.

Normal urine is not infective, but if the genito-urinary tract is opened into the peritoneal cavity, an infection atrium is present.

Hematuria is a very unsafe guide to the amount of hemorrhage that is going on. It is no criterion as to whether to operate or not. Hematuria is of value only as a diagnostic sign. It indicates only that the urogenital tract has been wounded.

It is possible that hemorrhage may occur to an alarming extent, entirely extraperitoneally. This will be indicated by signs of hemorrhage in general, and locally by a rapidly forming tumor in the loin which is usually palpable through the anterior abdominal wall, is dull on percussion and is independent of any change in the position of the body. Under the above circumstances immediate lumbar incision and a checking of the hemorrhage is demanded. Nephrectomy may prove necessary. If immediate laparotomy or lumbar incision is unnecessary, an expectant treatment is to be followed. If the extravasation of blood and urine extraperitoneally becomes infected, a lumbar incision and drainage, and possibly a secondary nephrectomy will be indicated.

The mild cases of kidney contusion demanding only expectant treatment and rarely operation, usually recover. Fortunately the mild cases are the most numerous. The graver cases do not recover without operation.

Statistics demonstrate that in primary nephrectomy the mortality is less than in secondary nephrectomy after sepsis is present. Therefore, the following is a wise course to pursue, namely: If there are severe or dangerous symptoms of either hemorrhage or sepsis present, operate in an exploratory way and be guided by circumstances as to whether a nephrectomy is done or not, remembering that the early nephrectomy is safer than the late one. If possible, one should not wait for sepsis to appear. Keetley,[2] in 1890, did a partial nephrectomy upon a lacerated kidney; the man recovered. Bardenheuer[3] resected one-third of the kidney and the patient recovered satisfactorily. This procedure of partial nephrectomy is one to be seriously entertained. Every particle of kidney tissue should be saved rather than to sacrifice any unnecessarily.

In packing the wound after nephrectomy, it should be remembered that several cases are recorded in which the gauze packing compressed the colon to such a degree as to cause intestinal obstruction. Israel has mentioned one such case. Before nephrectomy is done, the kidney of the other side should be palpated to be positive of its presence.

Whenever a nephrectomy is done for contusion of the kidney, the urine should be examined to determine the behavior of the remaining kidney. In nephrectomy for disease or new growth, com-

[2] Lancet, London, 1890, i, 134.
[3] Arch. f. klin. Chir., 1891, xlii, 371.

pensatory hypertrophy will have been established in the remaining kidney before operation. In nephrectomy for injury no such compensation exists, consequently, the effect upon the remaining kidney will be quite different from that seen in the first instance.

INJURY TO THE STOMACH.

The stomach wall is very elastic; it is protected by the ribs, the liver and the bowel. Rupture of the stomach, followed by the escape of stomach contents, is rapidly fatal. The anterior wall of the stomach is the location of most ruptures. One case is reported in which operation was done on the fourteenth day; a tear 4 centimetres long was found. The stomach contents had been walled off by local peritonitis. Recovery took place.

An incomplete separation and laceration of the mucous coat of the stomach is not uncommon. Ziegler[4] reports a cyst which formed in the anterior wall of the stomach, probably from a contusion of the upper abdomen. The cyst was drained and the patient recovered.

Guinard[5] reports a case of contusion of the abdomen; perforation of the stomach; suture; recovery. The perforation was in the lesser curvature near the pylorus, and was caused by a carriage wheel passing over the abdomen. Blackish vomitus and tarry stools and peritonitis existed.

A severe pain in the gastric region, lasting for a long time, associated with an anxious facies, some restlessness, nausea and the vomiting of blood, is strongly suggestive of stomachic rupture. In 6 out of 11 cases vomiting of blood was especially mentioned. In one instance this symptom was absent, and this proved to be a complete rupture near to the pylorus. Of 11 cases, not including those above, the longest period of life following the accident was fourteen hours.

RUPTURE OF THE INTESTINES.

The form of injury which produces an intestinal rupture is varied. Of 80 cases analyzed, 36 were from horse kicks; 23 from carriage wheel accidents; 13 from man kicks; 8 from spent shells. Violent and sudden percussion of the abdominal parietes is characteristic of all these forms of injury. The force is in each instance exerted over a comparatively limited area of the abdomen. A perpendicular blow is most harmful to the intestine. The small bowel is the seat of the lesion in 75% of all intestinal ruptures due to traumatism. The jejunum and the lower ileum are most often injured. These parts are at the junction of a fixed and movable portion of the bowel. There is usually more than one rupture found in the bowel. The rupture may be caused by a crush or by a bursting of the bowel. If by a crush, the wound in the peritoneum is usually smaller than that in the mucous and muscular coats. If by bursting, the wound in the peritoneum is larger than in the mucous and submucous coats.[6] There is a suggestion here in treatment. Be sure that the peritoneum covering all the lacerated mucous and muscular coats is reinforced. It may not be sufficient simply to close the peritoneal wound.

Usually the wounded bowel lies beneath the seat of the contusion of the abdominal wall. Rupture being most frequently due to a crush of the bowel against the lumbar spine, a search should be made, in operated cases, from the seat of the surface contusion back to the lumbar spine. The bowel lying in this line should be very carefully examined. In multiple lesions of the intestine, the lesions are superimposed and are more severe the nearer they are to the vertebral bodies.

If the visceral injury is merely a contusion of the intestinal wall, there being no immediate rupture, the appearance of serious symptoms of perforation may be delayed as much as five or ten days[7] until the contused area in the bowel has perforated, a necrosis following the contusion.

Contusion of the gut may lead to peritonitis, even when not so severe as to cause gangrene and perforation; the diminished vitality having allowed micro-organisms to penetrate the tissues and initiate an inflammatory process in the adjacent peritoneum.[8]

Rupture of the inner coats of the bowel, with some bleeding into the lumen of the bowel, often occurs when the peritoneal investment remains intact and no perforation occurs.

The researches of Cushing[9] and the lamented Livingood upon the bacterial flora of the intestinal tract are of very great importance in connection with wounds of this part. Peritonitis, following intestinal rupture, is dependent for its characteristics upon the bacterial flora of the canal at the site of the lesion. The prognosis of such peritonitis will be favorable proportionately with the scarcity and inocuousness of the micro-organisms which are present. In the upper portion of the intestinal tract, the bacterial flora is more scanty than in the lower portion. Wounds of the duodenum and jejunum are less fatal than of the lower ileum and colon. It is worthy of note in this connection that in health putrefactive changes, and consequently putrefactive organisms and their products, are absent from the small intestine.

Evidences of injury to the abdominal wall are usually wanting. There is no one unmistakable sign of rupture of the bowel. Shock may be either slight or profound, usually it is slight. It may be wanting. The army cases are valuable in this connection. A cavalry man, when kicked by a horse, exhibits often so little shock that he immediately remounts and rides some distance before being disabled and giving up. Many such cases have had a perforated bowel. The shock is independent of the severity of the blow.

Shock reduces sensibility to pain. Severe, persistent, localized abdominal pain, appearing either immediately after the injury, or after shock has

[4] Centrbl. f. Chir., April 21, 1894.
[5] La Presse médicale, January 22, 1898, p. 37.
[6] Gaz. des hôp., Paris, 1895, p. 429.
[7] L. Muguier. Thèse de Paris, 1883.
[8] Grawitz Chante. Annalen, xi; Jahrg., Berlin, p. 770.
[9] Johns Hopkins Hospital Reports, vol. ix.

subsided, is the most important sign of rupture of the bowel. Early, frequent and uncontrollable vomiting is suggestive of rupture of the bowel. Tenderness, localized and persistent, is a very valuable sign.

Absence of liver dullness is suggestive of the escape of gas from a rupture of the bowel to between the liver and chest wall and diaphragm. Adhesion of the liver to the chest wall and to the under surface of the diaphragm would prevent this sign from being in evidence. Great tympanites may cause the liver dullness to disappear. Bloody stools are seen in some few cases of intestinal rupture. This is, however, an uncommon sign. The facial expression is often of very great importance. In intestinal rupture a serious, drawn appearance of the face is present, suggesting a grave difficulty.

Injury to the mesentery may, through hemorrhage, complicate a ruptured bowel. There is comparatively little bleeding from the torn edges of the intestinal wound. If intestinal rupture is suspected even, exploratory laparotomy should be done at once.

The fatality of uncomplicated concealed lesions of the intestine is very great. Cases of uncomplicated intestinal rupture group themselves roughly into three classes:

(1) Those in which shock, collapse and death follow each other in alarming rapidity. No surgical intervention is possible.

(2) Those in which the shock clears up in average rapidity and reaction appears. Some of the local signs become prominent, which have already been mentioned. Early operation will save many such cases.

(3) Those in which there is but slight shock, associated with vague signs of abdominal disturbance. The patient grows very gradually weaker. There is a question as to whether improvement is occurring or not. Meantime, sepsis is beginning in a most stealthy fashion, and even with a low temperature. These are cases to be operated early when it is first noted that improvement has ceased.

Persistent pain and tenderness and early vomiting should lead one to operate.

LACERATION OF THE SPLEEN.

A crushing injury or a blow to the lower left chest or to the upper left abdomen may cause a rupture of the spleen without evidence of external injury.

The signs of internal hemorrhage, together with the greater dullness in the splenic region following an injury to the left hypochondrium and lumbar regions, are sufficient to make a diagnosis of splenic rupture.

The dull area upon the left does not disappear upon turning the patient to the right side. The dullness upon the right side does vary as the individual is turned to the left. This is accounted for by the fact that the splenic blood having an unusually large proportion of colorless corpuscles coagulates rapidly. In Mixter's case (soon to be reported) the blood filling the abdomen was fluid, without much clotting. This is explained by the fact that the spleen was torn from its vessels and that the hemorrhage took place from the splenic vessels directly before entering the spleen.

The danger attending a ruptured spleen is hemorrhage. Most unoperated cases die from hemorrhage. A few cases which escape death from hemorrhage have a subphrenic abscess. There are a number of cases of rupture of the spleen where spontaneous recovery takes place, as shown by several post-mortem scars in spleens of persons who have previously suffered severe abdominal injuries.

Operative treatment may be: (1) Immediate splenectomy; (2) suture of the torn spleen; (3) or packing the torn spleen after cauterization. The choice of operation depends upon the condition of the patient and of the spleen. If the patient has lost much blood, if the spleen is large and extensively adherent, if the tear is favorably situated, suture is to be chosen. If, on the other hand, the capsule is thin and the spleen is soft and the tear is inaccessible, packing the wound is to be considered. Ordinarily, with a normal spleen, and particularly if it is much lacerated so that fragments are detached, splenectomy is the best operation. Hemorrhage is the paramount reason for operating. The loss of the spleen is unattended by such grave dangers as at first was thought probable. Up to date some 25 splenectomies have been done for subcutaneous rupture, with 13 recoveries. Dr. Mixter's case, yet unreported, will make 26 cases, with 14 recoveries and 12 deaths. Two cases were packed, with 1 recovery. One case was sutured, with 1 death.

There have been recorded several instances of unusual injury following contusion of the abdomen, noticeably rupture of the aorta, of the celiac axis, of mesenteric vessels, of the spermatic artery, of the inferior vena cava, of the portal vein, and of the gastroduodenalis artery. Rupture of the gall-bladder is recorded. Rupture of the rectus abdominis muscle is reported with fatal internal hemorrhage from a torn deep epigastric artery, the patient dying in six hours after the injury. Rupture of the diaphragm from external injury is recorded in but 3 instances.

INJURIES TO THE PANCREAS.

Rupture of the pancreas uncomplicated by injury to other organs is rare.

The reported cases of rupture of the pancreas may be grouped in two groups: Those almost immediately fatal and those not immediately fatal. Leith recorded 9 fatal cases of the first group. In only 2 of these 9 cases was the pancreas the only organ implicated. Death is due to hemorrhage. In the second group are those cases in which extensive cicatrization may be found post-mortem without any evidence of its presence during life, excepting that at some time severe abdominal injury was received. Pancreatic rupture is as yet unrecognizable. Signs of shock and collapse and internal hemorrhage following

upon sudden trauma to the epigastric region is presumptive of pancreatic hemorrhage. The trauma in the reported instances was directly backward and of considerable severity.

Here should be mentioned cases of "traumatic cyst" of the pancreas. In these cases, the earliest signs of trauma having cleared up after ten days or later, a second group of signs appears: Vomiting, indigestion, an epigastric tumor which occupies the umbilical, epigastric and left hypochondriac regions. It is highly probable under these circumstances that a rupture of the pancreas has occurred, and that a "pancreatic cyst" is forming, or that an epigastric cyst exists, having its origin from the ruptured pancreas.

Lloyd has discussed the relationship which exists between injuries to the pancreas and the accumulation of fluid in the lesser cavity of the peritoneum. It is very likely that many so-called cysts of the pancreas are accumulations of fluid blood and pancreatic secretion in the lesser omental cavity. That such cysts do develop after traumatism is now generally acknowledged. The peritoneum covering the anterior surface of the pancreas is the only barrier in a rupture of that organ to blood and pancreatic secretion, entering the lesser cavity of the omentum. Some 17 pancreatic cysts of traumatic origin are recorded. Early median abdominal drainage is the treatment commonly employed in these cysts.

GENERAL CONSIDERATIONS.

In approaching a case of contusion of the abdomen it is important to bear in mind several facts which are salient. The causes of the contusion should be investigated with great care; too often the effects manifest themselves by blind, delayed and insignificant signs. The resistance of the abdominal walls varies with age, the state of the health and with the amount of contraction of the abdominal muscles. Whether the injury, in other words, was expected or whether the abdomen was taken entirely unawares is worthy of consideration.

The traumatism to the abdominal wall may be severe, the resulting injury may be trivial and *vice versa*. A trivial blow may result in serious damage to intra-abdominal viscera. Usually, in these cases, the greater the force the greater is the injury. A diffused crushing blow results in bruising and laceration. A blow by a small instrument, acting locally, results in local rupture. Even in comparatively simple injuries, it is difficult to estimate the force of the blow. Who can measure the kick of a horse?

A hollow organ, if distended, is more vulnerable than if empty. Inquiry as to the previous meal time and as to the last micturition will afford valuable information. The exact direction of the violence is important; whether it is perpendicular, parallel or oblique to the anterior abdominal wall. The clothes of the patient should always be examined for they may offer some indication as to the injury.

The question to be immediately settled following an abdominal contusion is whether or not operative intervention is necessary. The evidence at hand will often be sufficient to justify, even if not to demand, an exploratory operation. On the contrary, the evidence may be insufficient for the making of an exact diagnosis. If an exact diagnosis is waited for, the favorable moment for a successful operation may be lost. The surgeon today is tempted to operate in an exploratory way upon slight provocation. Indiscriminate early exploratory operating for a diagnosis is to be deprecated. It is certainly better, however, to have operated many times and found no lesion than even once to have neglected operation when it might have saved a life.

Aside from the signs of lesions of individual viscera, already related in some detail, there are certain general conditions which may be present and which demand consideration in order to intelligently determine whether operation is wise or not. These are the conditions of shock, hemorrhage, and the extravasation of visceral contents causing peritonitis.

SHOCK; HEMORRHAGE; PERITONITIS.

The presence or absence of these three conditions will be determined by a proper interpretation of the pulse, temperature and respiration, by the existence and character of vomiting, nausea, pain, tenderness, rigidity and distension, by a knowledge of micturition and intestinal peristalsis, and last, but of utmost importance, by a true appreciation of the facies of the individual.

Shock. — Death has followed a blow upon the abdomen with no discoverable pathological lesions in the abdominal cavity. Death from pure shock! Almost every abdominal contusion of moment is associated with some degree of shock, whether a visceral lesion is present or not. Hemorrhage exists in many cases of abdominal contusion. Hemorrhage itself, even though not alarming, produces shock.

It is very important, and at times most difficult, to discover the etiological factors of the shock which is present in a given case. It is impossible to say positively that this much of the shock is dependent upon the blow alone, "nervous shock" so called, and that this much is due to hemorrhage, and this much is dependent upon the extravasation of the visceral contents. The differentiation of the causative elements of the initial shock necessitates keen discrimination in the interpretation of physical signs. The accomplishment of this differentiation will often solve the problem of operative interference.

Shock is very variable in individuals suffering from the same lesion. The temperament of the individual (seen, for instance, in the apprehension of a fatal issue), is often a factor in determining the degree of shock. The nationality of the individual influences materially the expressions of shock. These must all be taken into account. Shock will be manifested by a loss of consciousness. The unconsciousness may be more or less profound, dependent upon the degree of shock.

Pallor and perspiration of the face, low temperature, vomiting and nausea, chilliness and coldness of the extremities; a small, irregular compressible and rapid pulse beat; superficial respiration; anuria; less than the normal reaction to stimulation. These are evidences of shock. They all may be present, many may be absent.

A progressive improvement from the conditions of shock is valuable evidence that the patient may bear operative measures. Ordinary shock is recovered from within about three hours of the injury. Signs of reaction appear then and are soon well established. If recovery is somewhat delayed beyond this period there is presumptive evidence of a grave intra-abdominal lesion. Increasing shock after partial recovery from primary shock should suggest intra-abdominal hemorrhage or visceral rupture. Damaged tissues may be giving way. An absence of shock does not mean an absence of a serious lesion. Operation is absolutely contra-indicated in profound and continued shock.

Hemorrhage.—Bleeding inside the skull is harmful because of the irritation due to pressure. Hemorrhage within the abdomen is serious because of the loss in volume of the blood. In intra-abdominal hemorrhage the blood gravitates. Renal hemorrhage may be retroperitoneal. Dullness in the loin or loins, which changes to resonance as the patient is turned to the opposite side, is suggestive of free fluid blood within the abdomen, if other signs of hemorrhage be present.

In hemorrhage there may be shock, together with restlessness, thirst and a sighing respiration. Vomiting of blood may mean injury to the stomach or duodenum. Collapse with sudden exsanguination means rupture of a large vessel or extensive rupture of the liver or the spleen.

Reynier and Quenu have demonstrated that a slight rise of temperature is not incompatible with hemorrhage.

The *pulse*, of course, is variable. If there is shock the pulse will be rapid and feeble. It may be slow rather than rapid, if the depression is extreme. An increasing pulse rate with a low or subnormal temperature means hemorrhage, and demands immediate surgical interference.

The *temperature* is usually subnormal during the initial shock, particularly if the shock is considerable. The gradual rise of temperature to the normal point, associated with a falling pulse rate, denotes a favorable condition. A rise of temperature following an abdominal contusion usually means infection. The height of the rise in the temperature is not indicative of the severity or the extent of the infection.

Pain.— Shock diminishes the consciousness of pain. As the initial shock subsides, evidences of pain may appear. When pain is dependent upon hemorrhage, other signs of hemorrhage will be present. Pain of importance is evident in the face of the individual. The exact meaning of pain is often difficult to determine. Persistent local pain is important. In intestinal injuries it often locates the lesion.

Tenderness is usually general at first in an intra-abdominal lesion, but it soon becomes localized. Honest tenderness, that is, real tenderness, unbiased by the personal equation, coupled with pain, are the two most valuable signs pointing to the localization of intra-abdominal lesions.

Vomiting is very generally an early sign of shock. A simple emptying of the stomach once should not cause alarm. Constant and persistent vomiting means a visceral lesion. Unprovoked vomiting, a regurgitation, means peritonitis. Vomiting without other evidences of shock is significant, and vomiting which reappears after it has once ceased should cause concern.

Distension, with other signs of peritonitis, suggests serious infection.

Rigidity of the abdominal muscles indicates peritoneal involvement. Rigidity of the abdominal muscles and tenderness mean peritonitis. Pain, rigidity, tenderness together are unmistakable evidences of peritonitis.

It will thus be seen that the problem presented to the surgeon when he meets a case of contusion of the abdomen is definite in its demands, but often difficult of solution. These questions must be answered: Is operation necessary? Are there lesions of viscera? Two classes of cases should not be operated upon at first: (1) That class in which little or no shock is present; in which there are absolutely no localizing signs, and (2) that class in which profound shock, amounting perhaps to collapse, exists. Immediate operation is demanded in persistent moderate shock, with or without localizing signs. Immediate operation is demanded in cases of progressing hemorrhage. Immediate operation is demanded in cases of peritoneal infection. Having determined that definite lesions exist in any of the viscera, the form of treatment to be adopted is pretty generally accepted, and has been indicated under the consideration of each organ.

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OBSERVATIONS ON THE USE OF ANTI-STREPTOCOCCUS SERUM IN THE TREATMENT OF PUERPERAL SEPSIS WITH A REPORT OF FIVE CASES.[1]

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THIS paper has been prepared in the last few days as a consequence of your chairman asking me to report in a short paper my experience with the use of antistreptococcus serum in the treatment of puerperal sepsis. This paper is not, therefore, in any sense a review of the subject of puerperal septicemia, or even an expression of my views in regard to the treatment of the same, any more than may be pertinent in reporting the few cases in which the serum treatment has been employed, and in commenting on the results and treatment in these particular cases.

The antistreptococcus serum has now been in more or less general use for a number of years, and in this time has been subjected to a fair trial, by a large number of men and under varying conditions. In the aggregate, a considerable number of cases have been reported of its successful use; for the most part, however, they are reports of single isolated cases, and not reports of series of cases treated on a rational basis. Two years ago the committee of the American Gynecological Society collected over 350 cases in which the serum had been used, among which cases there was a mortality of 33%. This is believed to be higher than the average normal mortality in similar cases.

I believe that the general opinion of the profession at large, on the use of antistreptococcus serum in puerperal sepsis, is, that as a therapeutic measure it is a resource of very uncertain value, not to be relied upon with any certainty of success, and applicable only to a few cases as an accessory in desperate conditions.

My observations are confined to the use of the serum in 5 cases, all occurring in the past year, and these 5 cases I have reported in some detail. Before last year there were a few cases, but the notes of these were not available for hurried reference.

CASE I. C. H., thirty years. First seen in consultation May 15, 1900. On May 4th, patient delivered of a full-term child in absence of physician, and no examinations made either before or after delivery by the attending physician. She was sent to hospital and admitted with a temperature of 103.8°, pulse 120 and respiration of 40. Face flushed, dazed and apathetic at times, at other times wildly delirious. Fine tremor of hands and of tongue when protruded. Abdomen slightly distended and tympanitic, not tender and no spasm. Uterus enlarged, os patulous with considerable discharge. Intra-uterine douches and later curettage was performed without finding any débris of consequence. Urine, albumin trace with few hyaline casts. Patient was pretty sick for ten days, running a temperature from 100° to 103°, and her mental condition at this time was rather bad, depressed at times, at others very delirious; but at no time was her condition considered desperate or her life despaired of. Patient did well while in the hospital, but her recovery of strength and mental equilibrium was very slow, and she remained in the hospital nearly three months before she was ready for discharge.

This patient, before entrance, was given three injections of antistreptococcus serum, one daily, 20 cubic centimetres each time, and these injections were followed by daily remissions of temperature to about normal, the temperature going up again at night. After her admission to the hospital no more serum was administered, because her condition was not considered severe enough to demand it. It is possible that the serum may have influenced the case in its favorable termination, although I have always thought, as I did at the time, that the patient would have recovered without it. Her convalescence was slower than uncomplicated cases of puerperal sepsis, but not longer than septic puerperal manias usually require for recovery.

CASE II. E. F., twenty-five years. Entered hospital October 1, 1900. Italian. No history

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, January 23, 1901.

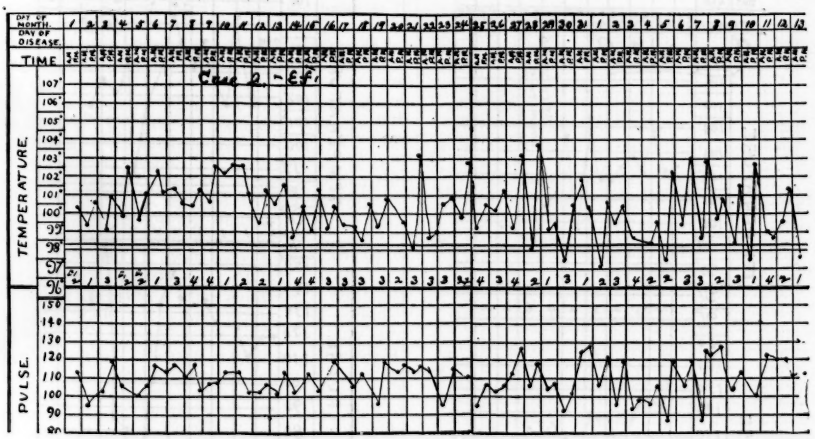
obtainable, except that patient was sent in for a septicemia and peritonitis after miscarriage. Patient in poor condition, weak, with high temperature and pulse; slight abdominal distention and tenderness; uterus enlarged and soft; os patulous with a considerable foul discharge. Patient was curetted shortly after entrance because of condition of uterus, and much foul material was removed. After curettage patient seemed to improve slightly for about a week, when the uterine discharge practically ceased. She was brighter, less apathetic and a little stronger apparently, although the temperature still remained high and very irregular.

After some days, the patient's condition not at that time improving perceptibly, she was given a bottle, 20 cubic centimetres of antistreptococcus serum. The injection did not have any noticeable influence on the patient's general condition or in her pulse and temperature; but she seemed to be holding her own after its use without any especial change, although being very weak.

Soon after the injection of the serum, a report on the products of the curettage was received from the pathologist, stating the condition to be tuberculosis of the uterus. This report rather nonplussed us at first, and it was with considerable skepticism that the report was received, as the case seemed clinically a typical puerperal septicemia, not only from the history, but also from the course of the disease and the uterine discharge. The patient was, therefore, kept under observation in the gynecological ward for nearly three weeks, and then, nothing new developing, she was seen by Dr. Sears, who agreed that the condition might be one of tuberculosis, and she was transferred to his service. At this time the abdomen was slightly distended, tender and tympanitic, and her condition generally resembling sepsis. She, however, died two weeks later.

Autopsy showed a general tubercular peritonitis while there were results of an extensive pelvic inflammation, the uterus being adherent to the bladder and drawn to the right and adherent to the right pelvic wall. The right tube and ovary were adherent to intestines, and the left tube to the pelvic wall.

This case was undoubtedly one of general peritoneal tuberculosis and tuberculosis of the uterus, with which occurred a puerperal infection of severe type. Because of these complications occurring together, it is scarcely fair to judge the action of the serum in this case by the patient's death, for had the existence of the tuberculosis been known before the serum was injected it would not have been used. It is probable that the woman was in very poor condition from the tubercular peritonitis, and the puerperal infection was merely the means of hastening her death.

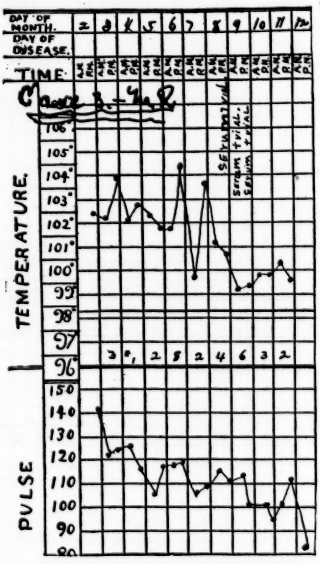


CASE III. M. R., twenty years. First seen October 2, 1900. Six days before, on September 26th, patient was delivered by forceps of a full-term child. Increasing pain, temperature and discomfort since delivery, when a consultation was held and she was removed to the hospital, having a temperature of 104.2° and pulse of 124. At entrance, pulse and temperature were elevated, eyes sunken, face anxious and there was mania present.

On examination, the abdomen was rigid and tender, not much distended. The uterus was enlarged, the os patulous, admitting the finger, and there was tenderness in both broad ligaments. The uterus seemed empty to the finger, although there was considerable discharge, and intra-uterine douches brought away some shreds. A curette was passed over the inner surface of the uterus, without ether, but nothing was obtained. The patient developed a pronounced mania, so that

constant restraint was necessary for her in the ward. The urine was normal in amount, containing a trace of albumin and a few hyaline and granular casts. The intra-uterine douches were continued twice daily. The patient failed gradually, in spite of all treatment, when on the sixth day she became entirely rational, no longer needing restraint, and remarked several times that she was glad to be again in her right mind.

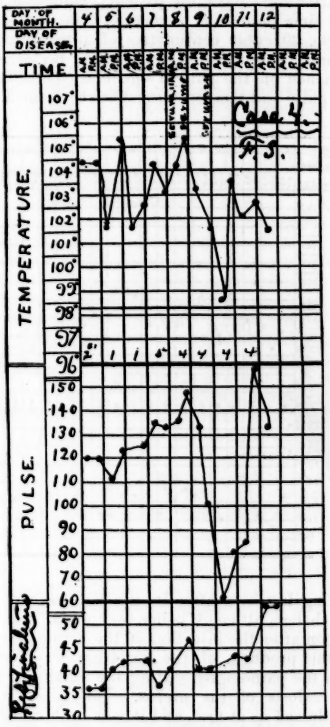
On this day, October 8th, 20 cubic centimetres of antistreptococcus serum was injected, 10 cubic centimetres in the morning and 10 cubic centimetres in the evening. The temperature chart is particularly interesting at this point, for while the regular chart shows a gradual decline from the first administration of the serum, yet the four-hour chart shows evening exacerbations on each day,



whether or not the serum was injected, varying between 103° and 104°.

On October 9th, the next day, there being no apparent improvement, 20 cubic centimetres of serum was injected in the morning and 20 cubic centimetres in the evening without any noticeable change. At this time, 60 cubic centimetres of serum had been given in all; there had been no change for the better in any respect. On the other hand, the patient had been growing steadily weaker and the pulse intermittent, so that the serum was discontinued, and the patient stimulated merely, until she died three days later, on October 12th, without any marked change having occurred in the symptoms.

The chart of this case is an interesting one, as I have already brought to your attention. The decline in the temperature and pulse following the injection of the serum, ordinarily favorable symptoms, without any amelioration of the patient's condition. I find we are very apt to look at a patient's chart, and, seeing a lower pulse and temperature, to at once conclude that there is improvement in the condition. I believe it is particularly true of septic conditions that the pulse and temperature chart is a poor guide in many cases, as the normal point is not infrequently reached only to react again shortly. I have also seen a patient die of sepsis in whom the temperature never rose above 100°.



CASE IV. F. S., thirty-seven years. Entered hospital on October 4, 1900. Six days before entrance, patient was delivered of a fetus of between four and five months for placenta previa. She was curetted soon after delivery for early sepsis. Patient was in a very poor condition and evidently profoundly septic. The uterus was enlarged, the os patulous, and the lochial discharge somewhat foul. The temperature was 104.2°, the pulse 118. There was dullness at the left base with marked bronchial breathing and numerous râles. Respiration at this time was not much

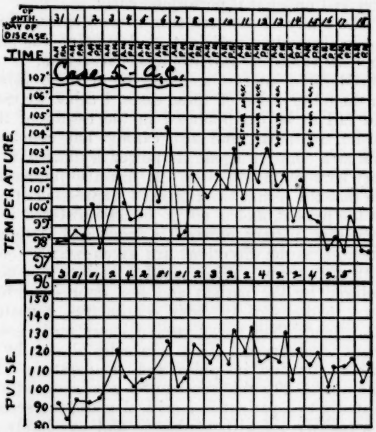
increased, but the next day it rose to 40, and patient unquestionably developed a septic pneumonia. The uterus was 5 inches in depth, the os admitting the finger, and a considerable amount of débris could be felt inside the uterus. The patient was therefore curetted, and the uterus washed out and packed with iodoform gauze.

The patient continued in a very serious condition, although for a few days she seemed to be improving slightly; but as this was only temporary, and her condition continuing very precarious, four days after entrance, on October 8th, 10 cubic centimetres of serum were given morning and evening without apparent result, and on the following day, October 9th, 20 cubic centimetres were given at one injection. Early the next day the patient's pulse and temperature fell rapidly to normal, and she almost collapsed, while the respiration remained unchanged at about 40 per minute. Under vigorous and free stimulation the patient rallied temporarily, while the pulse and temperature rose rapidly again to their former line. No more serum was administered, owing to its marked depressing effects. The patient died two days later.

This was a very critical case from the onset of the disease. The general septicemia was complicated by a septic pneumonia, which helped bring about the fatal result. No improvement of any sort was observed from the serum injection, 40 cubic centimetres being used altogether, while its use did result in marked depression of the vital forces, bordering on collapse.

Case V. A. C., twenty-six years. Admitted to hospital on December 31, 1900, for pelvic abscess and septicemia after childbirth. Confined by midwife 40 days before entrance, and operated for vaginal puncture a few days before being sent to the hospital. Patient was poorly developed and nourished, and her general condition was very seedy. Chest negative, except for a soft systolic murmur at apex. Pulse poor and feeble, 92 per minute, temperature 98°. Abdomen rigid with considerable tenderness, which prevented any satisfactory examination, except that there could be felt a mass in abdomen of considerable size extending half way to the umbilicus. Urine contained trace of albumin, much pus, and numerous hyaline and granular casts and a few brown granular casts. Just to the left and posterior to the cervix was a small opening in the vagina, extending into a cavity into which was inserted a small iodoform wick with not much discharge. This wick was removed daily, the cavity irrigated through a small tube with normal salt solution, and a new wick inserted, while the patient, being in a very poor general condition, was nourished and stimulated. This treatment was continued until the seventh day, when her evening temperature reached 104.4°, having before this maintained a general tendency upwards, as may be seen by a study of the chart. As there was little discharge from the cavity through the vaginal sinus at this time, it seemed probable from the continued rise in temperature that there was an accumulation of pus in the pelvis which was dammed up and not finding a ready exit. Therefore, it seemed best to give the patient a little ether, which was done, and an incision made posterior to the uterus transversely about one inch long from the side of the old opening through the vaginal wall. Through this opening, with my finger, I carefully separated the tissue up into the cavity which had previously been punctured and was being drained by the wick. No accumulation of pus was found there or elsewhere in the pelvis. The uterus was large, firm and anterior. The cavity was irrigated with salt solution and packed with iodoform gauze, the whole operation not lasting longer than ten minutes at the outside, and very little ether being used.

After the vaginal section the temperature ranged between 101° and 102° for three or four days. There was no marked change in the patient's condition, except it was evident there was no improvement, while on the whole the pulse was averaging a little higher, being about 120 per minute, and there seemed to be some loss of strength.



Other measures having failed, I thought it would be at least worth while to give the serum treatment a trial; accordingly, on the fourth day, 20 cubic centimetres of antistreptococcus serum was injected. This injection was repeated on the fifth, the sixth and the eighth days, when there was a marked decline in the temperature, and the patient seemed brighter and better, although still very weak. No more serum was injected, 80 cubic centimetres having been used in all. The temperature was subnormal on the ninth day, being 97.6°; but, nevertheless, the patient appeared to gain a little during the next few days, and seemed to be making fair progress on the road to recovery, when she suddenly collapsed and died in the morning, four days after the last serum was administered, twelve days after the operation, and about sixty days after delivery.

This case illustrates fully the disadvantages under which many of these cases are received into the hospital and treated there, entering in a very weak condition after a period of prolonged septicemia, already continued nearly six weeks, with probably only the most meagre care and surroundings through it all.

It seems fair to assume, and I am willing to admit, that the second operation which I performed was in a measure detrimental to the patient's interests, as it resulted in no improvement, and the probable conditions were not found as expected. On the other hand, the condition was gone over very carefully, and without relief in some form she seemed to be rapidly approaching a fatal termination.

I have never seen but one case up to the present time in which I have felt that hysterectomy was justified for puerperal sepsis, but possibly this case which I have just recounted might have survived under it if performed early.

The study of the results in these 5 cases, while not in themselves sufficient to determine the permanent value of antistreptococcus serum, is of considerable interest and may be of some value. In the observation of these cases, I think we cannot fail to be disappointed in the results of the serum treatment, and also cannot but conclude that as a curative agent its power is limited to a very narrow line of cases. It has also impressed me that the serum has a marked depressing effect on the patient, and is not to be administered to a very sick patient offhand in large and frequent amounts, as the directions are given which come with the serum. When used, I believe it is best endured by the patient and less depression follows, in doses of 10 cubic centimetres, repeated not oftener than every twelve hours until some result is observed. This is usually shown by a marked decline in pulse and temperature. In amounts of 20 cubic centimetres administered repeatedly to a patient in a critical state, the serum is a remedy not without danger and one likely to result in dangerous symptoms.

It is important to bear in mind that these cases of mine were all extremely sick, and in very critical, if not desperate, condition at the time the serum treatment was begun. But none of these cases were moribund, or even so critically ill that it was not considered at least that there was a good fighting chance. It is certainly in these cases that we should expect the serum to assist, if at all, as the milder cases recover without its use.

The mortality of puerperal sepsis, of all cases, mild and severe, is usually believed to be about 25%. In the City Hospital, where we see every year a large number of cases of this class, it certainly is not greater than this, and my impression is that it is somewhat lower. On this subject I hope to present a paper at a later date. In some cases much importance has been attached to the fall of the pulse and temperature which often follows the injection of the antistreptococcus serum. This fall in pulse and temperature does seem to be an atttendant symptom on the injection of the serum, but that is not always an entirely favorable symptom and is not unattended by danger. I am convinced that it is rather a signal of danger and an indication of impending collapse. This occurred in 2 of my cases, only shortly before death, and in one of these the pulse and temperature rose immediately, after touching normal, to 160° and 103.6° respectively. Moreover, severe cases of puerperal sepsis treated, without the use of serum, have frequently in the course of the disease remissions of pulse and temperature, only to recur again in a day or two when one is just ready to conclude that the disease has about run its course.

In every case of puerperal septicemia the virulence of each particular infection, the extent of the constitutional infection and the ability of the individual patient to combat the trouble, all have a direct bearing on the severity of the disease and on the ultimate result.

In puerperal sepsis the streptococcus is generally recognized as the main etiological factor, while a few other varieties of bacteria, as the staphylococcus and the colon bacillus, are believed to be the cause in certain cases, and in others the so-called mixed infections, when two or more of these bacteria are believed to be the exciting causes. In a few cases of pure streptococcus infections the antistreptococcus serum is apparently of great value as a life-saving measure. The varieties of the streptococcus are so many that it is only an occasional case that will be helped by the serum treatment. While in the majority of cases of streptococcus infection, and in all cases of mixed infections, it is useless to expect the serum to cure the disease.

I believe that the serum treatment has no place in the routine treatment of puerperal sepsis, that it should be used only in desperate cases after failure to obtain improvement by other and usually more efficient methods, and that if no improvement is shown after use for two or at most three days and the injection of 40 cubic centimetres to 60 cubic centimetres, it should be discontinued. I believe that its use is not free from danger, that it usually lowers the pulse and temperature, but at the same time it has a correspondingly depressing effect upon the patient, and that it has not apparently lowered the mortality of the disease.

With regard to the general treatment of puerperal sepsis, early curettage of the uterus carefully performed as soon as the diagnosis is established is, I believe, of primary importance, and the same result is not accomplished in my opinion by any other method of procedure. If carefully done it can result in no harm, and if efficiently performed it always removes the primary focus of the disease, and not infrequently removes the disease at its outer limits.

Following curettage, and sometimes in place of it in the mild cases, intra-uterine douches have proved to be of much value.

For constitutional treatment we must mainly rely on stimulation, tonics and forced feeding, with moderate diuresis and catharsis.

A CASE OF CÆSAREAN SECTION IN A FACE PRESENTATION, COMPLICATED BY UTERINE FIBROID.[1]

BY EMMA S. CALL, M.D., BOSTON.

On the evening of November 13, 1900, I was called by one of the internes of the Pope Dispensary, to a case of face presentation. I arrived about 10 P.M. and found Mrs. B., a healthy-looking Italian woman, age twenty, in labor with her second child. Her first labor, fifteen months before, was apparently normal and not unusually long. Her pelvic measurements were said to be normal. Labor pains began about noon of November 4th, but were not sufficiently severe to induce her to call a doctor till 7 P.M.

Upon examination, the os was found dilated about the size of a dollar, the membranes present but relaxed, and the face presenting in the right mentoposterior position, but above the pelvic brim. This position of the face is, I believe, held by the best authorities to be an indication for interference, owing to the impossibility of delivery, if rotation forward fails to take place in the pelvic cavity. I therefore decided, as soon as the os was sufficiently dilated to permit the easy introduction of the hand, to try first to change the presentation into one of the vertex, or, if that failed, to perform version.

About midnight, the os being fairly well dilated, ether was given, and the attempt was made to flex the head. This was unsuccessful, and after considerable time abandoned. The hand was then introduced into the uterus, the membranes ruptured, a foot seized and brought to the os, but the combined efforts of my hand internally and those of my assistants externally failed to push the head sufficiently from the pelvic inlet to allow the revolution of the body necessary to complete the version. This immobility was not because of any impaction of the head, which was still above the pelvic brim. The whole lower segment of the anterior wall of the uterus seemed thick and unyielding, and the difficulty was increased by the very small amount of liquor amnii.

After a considerable time spent in ineffectual attempts to complete the version, I sent for further assistance, and Dr. Alexander kindly responded. Although the patient had been kept under anesthesia, the manipulations had excited quite vigorous uterine contractions, and when Dr. Alexander arrived, it was considered by both of us unsafe to make any farther attempts at version. These contractions, however, seemed to have no effect in pushing the presenting part downward.

The life of the child was now seriously jeopardized, if not extinct, and we therefore felt that the interest of the mother must be the sole consideration. To try and extract by high forceps seemed useless and harmful, nevertheless the forceps were applied and an endeavor made to compel the face to enter the pelvis, where, if rotation failed, craniotomy could be more easily performed; but a short trial showed that the presenting part could not be dragged down without force, which would be very serious to the mother's soft parts.

The patient had now been under ether over two hours, and began to show signs of exhaustion, and it was evident that something must be done to deliver her quickly. The choice lay between craniotomy and abdominal section. Craniotomy on the face above the pelvic brim, with extraction, seemed to us both to be a more serious operation than section, though we realized that the manipulation to which the uterus had been subjected, was a decided drawback to the success of the operation.

The question of removing the patient to the hospital was considered; but it was felt that the delay necessarily involved in getting her there, would be more dangerous than to do it at once at home. Fortunately, it was one of the better class of tenements, and unusually clean.

The operation was performed by Dr. Alexander, who has kindly permitted me to report the case, although the honor of its successful termination belongs to her.

An abdominal examination now showed a distinct prominence, involving the left side of the uterus from the pubes half way to the umbilicus, and extending laterally about 7 cubic centimetres to the right of the median line. This surface was very hard and unyielding, and stood out quite plainly during the uterine contractions. On account of this, the uterine incision was made a little to the right of the median line, and only passed through a small part of this prominence.

The child was quickly extracted, and it was then seen that this appearance was caused by an interstitial fibroid, the part through which the incision passed being about 7 cubic centimetres in thickness. The uterus was sutured with silk, and the abdominal walls with silkworm gut. The patient was returned to bed in fairly good condition, the uterine contraction being very satisfactory.

The after history of this case was a very gratifying one. There was some distension on the second day, which was relieved by free action of the bowels and never returned. The wound healed by first intention, and the convalescence was quite uninterrupted.

I examined her about two weeks ago, eight weeks after delivery. The uterus was very little larger than normal, was perfectly moveable, and only a moderate thickening induration of the anterior wall remained.

This satisfactory result was largely due to the careful and constant aftercare given to the patient by our dispensary internes, Drs. Harrington, Myrick and Farquarson, and the dispensary nurse, who devoted themselves to her so assiduously that she was not left alone day nor night during the first week. Later we were much indebted to Miss Strong, director of the class for invalid attendants, who allowed some of her pupils to assist us.

In reviewing this case, our regret is, of course, that we did not operate earlier, when we could

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, January 23, 1901.

undoubtedly have saved both mother and child. The fact that the woman was only twenty years of age, that she had borne a child without difficulty within two years, and that the tumor, being interstitial, was not so prominent as to make its nature and extent realized until powerful uterine contractions had set in, are some of the facts which led to this mistake.

Clinical Department.

NOTES FROM THE NEUROLOGICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.

EXOPHTHALMIC GOITRE AND FRIGHT.

BY E. W. TAYLOR, M.D., BOSTON.

THE etiological relationship of various neuroses and fright has long been recognized, however difficult of explanation the association may be. A peculiar interest attaches to exophthalmic goitre in this connection, because of the fact that in its characteristic form it so perfectly represents the physiological appearances associated with fear. One's experience, however, by no means invariably bears out the supposition that fear is always the exciting cause of the neurosis; in fact, a sufficiently definite association of fear and subsequent symptoms to be of any scientific value is relatively unusual.

The following cases are reported as a contribution to the general subject. All 3 came under observation within a period of five weeks, 2 at the Massachusetts General Hospital and 1 privately. In each, careful inquiry disclosed no other adequate cause for the development of the disease than fright. All were in women.

CASE I. L. H., a housekeeper by occupation, of Irish birth, twenty-eight years of age, had been perfectly well up to October, 1900. Her appearance, when seen at the hospital, justified her claim to health and general nervous stability. In October she was violently frightened by being suddenly roused from sleep, and seeing a man looking in through the window, her sleeping room being on the ground floor. She was for a time wholly overcome by fear, was unable to move, and had a sensation of extreme weakness, which she described as "collapse." Typical nervous symptoms at once appeared, associated with a dread, not yet wholly overcome, of going to a window. She continued to feel unnerved and unlike her former self. She did not, however, notice the presence of a goitre. Several months later, the foregoing symptoms persisting, she was again violently frightened in a similar manner. Soon after this, she noticed an enlargement of the neck, with accompanying nervous symptoms of a marked sort. She is perfectly confident the goitre did not exist before, a matter about which it is entirely unlikely she could be in error, especially since she in no way associated the thyroid enlargement with what had gone before.

Physical examination, March 11th, showed a well marked goitre, not completely bilateral, no exophthalmus, a somewhat irregular pulse of 102, and a certain amount, though not excessive, general nervousness. The heart was normal; the knee jerks within normal limits, and the mental state not noteworthy. The patient presented the picture of an extremely mild, though undoubted exophthalmic goitre.

Improvement has been continuous since first seen, and although the goitre persists there can be no doubt that, under proper care and treatment, the condition will wholly subside.

CASE II. N. H., married woman of thirty-three, of American birth. Twelve years ago, while not in the best condition, the patient witnessed what she thought to be the drowning of her brother. She had immediately fainted on seeing the boat capsize in which her brother was, and on recovering consciousness still thought him dead, which naturally added to her fright. Immediately thereafter symptoms of marked general nervousness, with sensations of weakness, came on, which she is confident she had not had before. Two months later exophthalmus appeared, soon followed by bilateral goitre. For nine years she has been annoyed with rapid heart beat.

Physical examination now shows a perfectly typical picture of exophthalmic goitre; extreme exophthalmus, with slight Græfe's sign; goitre of moderate size, unequally bilateral; pulse 138, regular; typical fine tremor. The condition has remained practically unchanged for several years, under more or less intermittent treatment. The patient has not herself associated her disease with the fright she received at the time of her brother's accident.

CASE III. E. G., a student nurse, unmarried; twenty-eight years old; a native of Canada. She had been unusually conscientious in her work, but had been well up to the latter part of last year. In November, while nursing outside of the hospital, largely on her own responsibility, on one occasion she came into the room in which her patient was, and found her lying on the bed unconscious, and, as she thought, dead. Investigation showed that she had merely fainted as a result of some unusual physical exertion during the absence of the nurse. On recalling this occurrence, the patient distinctly remembers the violent fright into which she was thrown, though here again she did not herself associate the fright with her subsequent symptoms. She went on with her work, and a few weeks later, in December, had another difficult case, resulting in the death of the patient. Symptoms of general nervousness came on, tremor, poor appetite, and difficulty in doing her work. Seen a little later she presented unequivocal signs of exophthalmic goitre: loud, somewhat irregular heart beat; pulse 140; considerable exophthalmus; evident but not large goitre; general tremor; and much appearance of nervousness.

In each of these cases the association of a definite violent emotional disturbance, with the symptoms which came on immediately subsequently, is

too close to be disregarded. The fact of mere coincidence is, of course, never to be dogmatically denied, but it is certainly no straining of a point to maintain the decided probability of cause and effect. Some unknown predisposition, as in all other diseases, must be assumed; but the exciting cause, reasonably enough, may be regarded as the fright. No doubt a more careful investigation than is often made, of the immediate antecedents of the neurosis, would show an emotional disturbance as its precursor in a considerable number of cases. The manner of development of this perfectly characteristic disorder from such a cause is naturally, as yet, quite beyond our power of comprehension. If clinical experience bears out the etiological relationship it must none the less be accepted and seriously regarded, even though our knowledge as yet be purely empirical. The important part is the recognition of the possibility of the deleterious effects on the nervous system of physical traumata. There has been dispute enough about the matter in its practical bearings with relation to the recovery of damages in accident cases. One recalls a somewhat recent ruling denying damages to a plaintiff who has not received a physical injury. However practically useful such a general decision may be from a legal standpoint, in dealing with accident cases, it clearly has no medical justification. Every one who has followed the subject, is aware that in very many cases the original physical injury plays a small part in the ultimately developed neurosis. The physical effect in these disorders is by far the most important element to be considered. If courts can rule that physical contact is essential to establish a case, they must also rule that a neurosis like exophthalmic goitre, about the identity and reality of which there is, and can be, no question, should not be admitted to litigation if its apparent cause is attributable only to violent emotion. From every point of view it is desirable that cases should be reported to the end that more light may be thrown upon a problem, which is of the most intimate concern, not only to the physician, but to the public at large.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

REPORT OF THE COMMITTEE OF THE AMERICAN SURGICAL ASSOCIATION ON THE MEDICO-LEGAL RELATIONS OF THE X-RAYS.

DR. J. WILLIAM WHITE presented a report on the medico-legal relations of the x-rays at a meeting of the American Surgical Association in May, 1900,[1] and offered the following conclusions:

(1) The routine employment of the x-ray in cases of fracture is not at present of sufficient definite advantage to justify the teaching that it should be used in every case. If the surgeon is in doubt as to his diagnosis, he should make use of this as of every other available means to add to his knowledge of the case, but even then he should not forget the grave possibilities of misinterpretation. There is evidence that in competent hands plates may be made that will fail to reveal the presence of existing fractures or will appear to show a fracture that does not exist.

(2) In the regions of the base of the skull, the spine, the pelvis and the hip, the x-ray results have not as yet been thoroughly satisfactory, although good skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts, special caution should be observed when they are procured in basing upon x-ray testimony any important diagnosis or line of treatment.

(3) As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless and frequently misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated.

(4) It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed, and cases which will go on to non-union. Neither can fibrous union be distinguished from union by callus in which lime salts have not yet been deposited. There is abundant evidence to show that the use of the x-ray in these cases should be regarded as merely the adjunct to other surgical methods, and that its testimony is especially fallible.

(5) The evidence as to x-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely, when the strange susceptibilities due to idiosyncrasy are remembered, that in a small number of cases it may make a given individual especially liable to this form of injury.

(6) In the recognition of foreign bodies, the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former case should easily have been avoided; in the latter they are becoming less and less frequent, and by the employment of accurate mathematical methods, can probably in time be eliminated. In the meanwhile, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues, should remember the possibility of error that still exists.

(7) It has not seemed worth while to attempt a review of the situation from a strictly legal standpoint. It would vary in different States and with different judges to interpret the law. The evidence shows, however, that in many places and under many differing circumstances the skiagraph will undoubtedly be a factor in medico-legal cases.

(8) The technicalities of its production, the manipulation of the apparatus, etc., are already in the hands of specialists, and with that subject, also, it has not seemed worth while to deal. But it is earnestly recommended that the surgeon

[1] American Journal of the Medical Sciences, July, 1900.

should so familiarize himself with the appearance of skiagraphs, with their distortions, with the relative value of their shadows and outlines, as to be himself the judge of their teachings, and not depend upon the interpretation of others who may lack the wide experience with surgical injury and disease necessary for the correct reading of these pictures.

RESEARCHES ON THE ASSUMED CONTAGIOUSNESS OF ERYSIPELAS.

Dr. Wilhelm Respinger[2] treats on this subject as follows:

The well-grounded teaching of the contagiousness of erysipelas is based on the epidemics prevalent in pre-antiseptic days as well as on its diminution, save in sporadic form, since the antiseptic era, and finally, on its prevalence alongside of certain specific wound infections; for example, puerperal fever and cellulitis, which have turned out to owe their origin to a common micro-organism. This micro-organism has subsequently been found in rooms occupied by erysipelas patients.

Just how the contagium is disseminated has not been proven. In cases where the erysipelas followed in the wake of an open infected wound, direct infection is evident, and its spread to others under such circumstances is dependent on the contamination of dressings and utensils; wherefore the finding of cocci in such quarters tenanted by erysipelas patients has rightly been attributed to a possible dessication and dissemination of the germs from dressings and the bedding.

In view of the fact that a large number of cases of erysipelas exist without a wound, just how these are responsible for propagating the contagium, when it is recalled that the process is a lymphangitis, at first sight appears mysterious. The author has, therefore, sought to prove by experiment that the contagion was spread by the dissemination of atomized particles of the scales which result from the desquamation or from the atomization of the contents of vesicles. Von Eiselberg found this to be the case. Against this the author contends that his cases were accessory to wound infections. To eliminate such infection of scales by continuity, the author chose only idiopathic cases, and in no instance did he succeed in gaining streptococci from the scales; whence he concludes that these, being the only channels by which the contagium can in any atomized form leave the intact skin affected with erysipelas, the latter cannot be classed, *strictu sensu*, as contagious.

The contagium streptococcus always gains its entrance by a wound, however small. At this site the virus is particularly virulent, and its contagiousness is to be viewed only in the same light as any other wound infection. Thus, with erysipelas placed in the same category as streptococcus abcesses and cellulities, the latter, with their exposed surfaces, are infinitely greater purveyors to the spread of this infection than an ordinary facial erysipelas. Treatment should none the less be carried on under the strictest antiseptic precautions; but in this light there ought to be as much obligation to report a streptococcus abscess as an erysipelas to the health authorities.[3]

[2] Basel; Annals of Surgery, November, 1900.

CARBOLIC GANGRENE.

Dr. Francis B. Harrington read a paper on the subject of carbolic gangrene at a meeting of the Massachusetts Medical Society, June 12, 1900,[4] from which the following extract is made:

That dilute solutions of carbolic acid, applied to the extremities for a number of hours, may produce gangrene and total destruction of the part, is a fact of which the public at large and even many physicians are ignorant. It is an unfortunate result of the popularization of the antiseptic treatment of wounds. Carbolic acid, once the favorite antiseptic among surgeons, and now discarded, has become a general household remedy for the treatment of slight wounds and bruises. During the last five years at the Massachusetts General Hospital, I have discovered myself, or have seen through the courtesy of the out-patient surgeons, 18 cases of gangrene from this cause. In a large proportion of these cases, amputation has been necessary. These, together with cases which I can find in the medical literature of various countries, make a total of 132 cases of gangrene from dilute solutions of carbolic acid. It would be safe to assume that many hundreds of fingers have been destroyed from this cause. Doubtless many cases occur and are not recognized as due to carbolic acid, and these with many others are never reported. Usually the patient has come to the hospital with a story of having treated a cut, a bruise or a felon with a solution of carbolic acid which has been purchased from an apothecary for the purpose. Occasionally the treatment has been suggested by a physician.

The facts are these: An aqueous solution of carbolic acid (1% to 5%), if applied to an extremity, as the fingers or toes, for a number of hours, in the form of a moist dressing or poultice, may produce gangrene and total destruction of the part. This result is not from compression, but simply from the action of the carbolic acid.

It has been asked why gangrene does not appear on the trunk. Superficial gangrene does occur if the application is sufficiently prolonged and the saturation of dressings is great enough. The result is not so disastrous because of the greater thickness of tissues and because the blood supply cannot be shut off as it is in an extremity. It is the enveloping of the entire part, as the finger or toe, with the dressing which causes the complete destruction of the part, since the gangrene only affects those parts which are thus covered.

The public must be taught to use some safer treatment. Moist dressings are often very soothing and helpful in slight injuries of the fingers or toes. A large part of the benefit to be derived from any form of moist dressing can be obtained

[3] Beitr. zur klin. Chir., Bd. xxvi, H. 2.

[4] American Journal of the Medical Sciences, July, 1900.

by using boiled water on clean compresses. Safe household remedies for this purpose are tincture of hamamelis or solutions of borax or boric acid.

It is evident that carbolic acid solutions in any strength applied as a moist dressing are dangerous and ought never to be used. The fact that it is often used without bad results renders it the more dangerous. It is the duty of the medical profession to see that this needless destruction of fingers is stopped. Carbolic acid in any strength should be included in the list of those drugs which can only be procured by a physician's prescription. Whatever the strength, it should always be labeled as dangerous.

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

Regular meeting Wednesday, January 23, 1901.

Dr. E. S. Boland, the chairman, opened the meeting with the following remarks:

While our change of meeting place may make no special difference to our section, still it seems hardly civil to omit extending our hearty congratulations to the Medical Library, whose guests we are, on the opening of their beautiful home. Incidentally, we may felicitate ourselves on such pleasant quarters as are furnished here for us by the parent society at no added expense to us as a section.

As a member of the Library, and by your courtesy chairman of this section, it gives me great pleasure to welcome you here tonight. Ten days ago this building was dedicated to its use as a library with the expressed hope that, as a professional meeting place, added usefulness might ensue. At that dedication Professor Osler spoke of the value to the members of the "Attrition of the Medical Society." For the benefit of any who did not hear this man of clearest insight, let me quote three sentences of incisive truth which ought to be memorized by every one of us. "For the general practitioner, a well used library is one of the few correctives of the premature senility which is apt to overtake him. Self-centred, self-taught, he leads a solitary life, and unless his daily experience is controlled by careful reading or by the attrition of a medical society, it soon ceases to be of the slightest value, and becomes a mere accretion of isolated facts without correlation. It is astonishing with how little reading a doctor can practice medicine; but it is *not* astonishing how badly he may do it."

I suppose that we all, in theory, at least, recognize the need of up-to-date literature and professional intercourse; but as we get older we let the little cares and nearer duties crowd out these larger interests that go to make up the possibilities of our lives. It is so everywhere. It was stated in a periodical the other day that, out of a membership of over 500 the London Practitioners' Society had, at the meeting in question less than 15 were present. The "solitary life" which we are prone to lead is our weak point professionally as compared with the law. There, constant professional contact in antagonistic action eliminates the inefficient and develops the strong in their ranks. After graduation and hospital training, except for an occasional consultation, we are not of necessity brought together either in friendly or contentious association, and for professional growth the conditions are not good, but this is the lot of most of us. The fortunate few, on hospital staffs or in teaching positions, get the "attrition" that we need so much and get so little of in our daily work. Strangely enough, we fail to grasp our needs, and the men who are usually found at the meetings are not always the ones who need the benefits the most.

To go back to the Library, there is one feature of the case that ought to appeal to us: — With the passing of the preceptor and student relation — in which passing each has lost much — the practitioner not connected with school or hospital is doing nothing for the profession to which he owes so much. It is little enough, then, that he should contribute to the maintenance of the Library where medical students are welcomed and helped, and where the men in the profession who have the time and taste for study get the results which help us all directly or indirectly in the end. To escape "premature senility" then, our best hope would be to attend the sections which appeal to us most, as a duty which we owe ourselves individually; also to join the Medical Library even if not readers ourselves, and so repay to some extent our obligations to the profession.

Dr. H. O. Marcy read a paper entitled

GYNECOLOGY: ITS CONTRIBUTION TO GENERAL SURGERY.

Dr. Boland: I think it is very hard for any one who has been through the school since the day of aseptic surgery to realize what it was before that; the carelessness with which operations were done. I feel loath to let such a subject go by without discussion. The thought occurred to me how much we owe to gynecology in the domain of obstetrics. I am sure obstetricians will admit that they have received immense advantages over the treatment of twenty-five years ago in the demonstration of the possibilities of gynecology.

Dr. Emma L. Call reported

A CASE OF CÆSAREAN SECTION IN A FACE PRESENTATION, COMPLICATED BY UTERINE FIBROID.[1]

Dr. Higgins: I do not know that I can add anything of value. I think that recovery from the operation of Cæsarean section, done in a tenement house under these circumstances after the patient has been in labor for a long time, is certainly a cause for congratulation. It strikes me

[1] See page 427 of the Journal.

as being a very unusual case of face presentation with the head high at the brim in which the head could not be flexed or rotated. I have known of a recent case of face presentation in the pelvis posterior where the head could not be flexed, but where it was pushed back and version done. I should think that ordinarily we would consider that an impacted head as this seems to have been indicates craniotomy rather than Cæsarean section at this time.

DR. E. W. CUSHING: I think the case reflects great credit on those who carried it through so successfully. It occurs to me that all these cases, when reported, are of the greatest value in leading the minds of the profession to consider Cæsarean section earlier, as being in these times a comparatively safe operation which can be done, as it is really, with the saving of the life of the child and with fully as little risk to the mother, very often, as a severe case of obstetrics, terminated with great difficulty by the forceps, or even by craniotomy. For you are not quite safe in craniotomy from injuring the mother, and certainly the life of the child is worth a good deal. I would like to ask the doctor if this incision went right through the fibroid? If so, whether it would be possible to have enucleated it, or if the fibroid was large enough to cause the question of removing the uterus to be considered? I did not understand how large the fibroid was. It may be the fibroid was so large it would be a favorable time to remove the uterus, although I can imagine that in such a vascular affair as the pregnant uterus it would not be a favorable time to enucleate the tumor. The cases of fibroids complicating pregnancy are not so very uncommon. I have had three or four where it was necessary to remove the uterus for a fibroid where pregnancy was present as a complication. One such case was in the wife of a physician a few months ago. There was a large fibroid in the lower part of the uterus, so that delivery would have been impossible. She was pregnant about three months. I have had, I think, 4 cases of that kind, although not at term. I have seen Dr. Price, of Philadelphia, remove the pregnant uterus, fibroid and child by Porro's operation, twice, I think. So far as I know all these have done well, so that my opinion would be in favor of a Cæsarean section in competent hands as against craniotomy where the child is living.

DR. ALEXANDER: In reply to Dr. Cushing's inquiry concerning the enucleation of the fibroid, that was thought of at the time, but it was decidedly interstitial and occupied the entire thickness of the uterine wall from the mucosa to the peritoneum, so that it was not possible to have enucleated under any circumstances, whether it were pregnant uterus or otherwise, and there was no doubt in our minds at the time as to the route, that delivery must be effected abdominally; but there was a question after the child had been delivered as to the best method of finishing the operation, whether to do a conservative Cæsarean or a Porro. The woman was very young, about twenty, very anxious to have more children; all the manipulations as far as the preceding ones were concerned had been done carefully, and under proper precautions, so that the uterus was probably not septic, and the fibroid could not be enucleated. It was, therefore, decided to do a simple conservative Cæsarean, and the result seemed to justify the conclusion.

DR. GOLDTHWAIT: I might mention 1 case which occurred about twenty years ago. I attended a colored woman in confinement, and it was impossible to deliver by the natural passage. I called Dr. Aikin in, who found the case rather beyond his powers, and he called Dr. Storer. Each one of us tried to deliver with forceps. Failing in this, craniotomy was resorted to. The operation was done with great difficulty. The child was very large, the pelvis somewhat deformed and contracted. There was also in the wall of the uterus a fibroid, apparently like the one mentioned. It had nothing to do with the failure to deliver, however. She recovered, and several months later came to me with a great deal of pain and considerable enlargement of the womb. I could not determine whether it was this fibroid or not. She had not had her periods since the operation. I called in a young confrere at that time to see her with me. We could not make out what the trouble was. It was impossible to find a well-defined os. A month later she returned complaining of a great deal of pain. We again examined with a like result. The next day, however, she came to my office, and after a very protracted examination, I thought I felt what should be the os. I succeeded in introducing a blunt sound. On its withdrawal, I should think a pint of blood followed. Apparently it had been confined there. I suppose the os had become occluded by the instrumental manipulations, and a fragment of bone. I do not know that I ever heard of anything like that. She recovered and became regular, though never again pregnant.

If, at the present day, I were again confronted with similar conditions I should resort to Cæsarean section, thereby giving the child a chance for life without increased risk to the mother.

DR. HIGGINS: In my remarks I did not intend to criticise the operator, nor would I wish to be considered as advocating craniotomy on a child who had a fair chance of being saved by Cæsarean section, and certainly never would advise it or do it on a living child if the mother were in good condition; but it seems to me a case of impacted head high, which could not be pushed back to flex or rotate or do version, would be considered as an impacted head, and probably an impacted head under those conditions could not be removed without great difficulty and considerable strain on the child even after opening the abdomen. Symphyseotomy would undoubtedly release the head under such conditions, and would in my opinion be a conservative operation to perform if the child were alive, and if not I should not hesitate to advise craniotomy. It would seem to me to be a very unusual case in which Cæsarean section would be indicated, or would be considered a conserva-

tive operation if the baby were not living. I am sorry Dr. Call did not say more about the condition of the baby, whether the baby's heart was beating before and also after delivery. These conditions are important, I think, in guiding us to future operations.

DR. CALL: The baby's heart was beating until within a short time of the Cæsarean section, but we were not sure of it at the time we began the operation. I know it seems as if there were a very decided want of skill to say that the head could neither be flexed, nor version performed. Of course no one can tell whether some one else could not have done it. All I can say is, that this fibroid was more like an infiltration than a distinct tumor, and seemed to involve a great portion of the anterior wall of the uterus on the left side and extended into the right, so that the whole lower segment appeared to be unyielding, and, moreover, I do not think there was more than a cupful of liquor amnii. The membranes were not ruptured, until I had tried for some time to flex the head. I think those two conditions were undoubtedly the cause of our failure to do the usual operation, and, in fact, the reason I suppose that the abdominal operation was delayed so long, was because it seemed to me as if it must be done, and I think I worked over it longer than I should have done. The whole of the presenting part was above the pelvic brim, and the anterior section of the uterus pressed down in front of it, so that craniotomy would have been an extremely difficult operation. It seemed to us both that, even although there had been a great deal of manipulation, craniotomy under the circumstances would be such a serious thing, that Cæsarean section offered the better chance of saving the mother's life.

DR. F. A. HIGGINS presented a paper entitled

MY EXPERIENCE WITH ANTISTREPTOCOCCUS SERUM IN PUERPERAL SEPSIS.[2]

DR. BOLAND: I have seen this treatment used in only one case, and that in the practice of a neighbor. The physician was warned by the patient that she always had childbed fever, and he was especially careful. But the symptoms developed. The temperature ran to 104° F. There were tympanites, delirium, weak pulse; in fact, all the classical symptoms. He curetted, stimulated, employed intra-uterine injections and used antistreptococcus serum. The effects Dr. Higgins spoke of, namely, temporary depression of the pulse and temperature was noted. This treatment was finally discontinued and the woman made a good recovery. Evidently she responded more to stimulation than to the serum treatment. Until bacteriology determines just what the pathogenic agent is, and that we have nothing to deal with but that single infection, it seems to me any deductions from the use of antitoxin must be fallacious. I fully agree with what Dr. Marcy has said as to the caution we should use in our predictions of any form of treatment.

[2] See page 422 of the Journal.

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HOSPITALS IN JAPAN.

WE ordinarily think of Japan as a country in which all the refinements of civilization are firmly established. Before analyzing the facts it is not a little surprising for us to learn, therefore, on the authority of Dr. E. C. Register, writing in the *Charlotte Medical Journal*, that there are but 10 notable hospitals in the entire country, with its population of 45,000,000. Some cities with a population of 100,000 have no hospital, and the very largest cities are far from liberally supplied. Tokio, for example, has only two, one of which, however, cares for about 2,200 patients a year, outside of out-patient departments, and has a staff of 80 resident physicians and 600 trained nurses. It is at this institution that Dr. Kitasato has his laboratory.

Surgery is done throughout Japan with much skill and success, but under considerable difficulty, owing to the deeply rooted prejudice among the people against surgical operations, due in great measure to the influence of the teachings of Buddhism. The prejudice is being slowly overcome, but still, in this hospital the amount of surgery is relatively less than work done in the departments of medicine. A striking feature of the hospital is the amount of tuberculosis treated in its wards. At the time the paper was written from which we quote, 40% of the patients had tuberculosis, and the records for the preceding five years show that 35% of all cases admitted were tuberculous. Tuberculosis appears in general to be very prevalent among the Japanese, no doubt due in great measure to their manner of life. Statistics show that 32% of all deaths in Japan are due to this disease. Skin diseases are correspondingly rare, no doubt due to the great cleanliness and bathing propensities of the people.

In Yokohama there is but one small and poorly equipped hospital, and Kiota, the former capital

of Japan, with a population of some 600,000 has only one good hospital, which is combined with a medical school. Pharmacy and medicine are both taught, partly by native and partly by foreign teachers, and last year 21 students were graduated. Other large cities are usually provided with but one hospital. Of the hospital at Kobe, Dr. Register writes as follows: "Its buildings are very large and it is evidently well patronized. They have 80 trained nurses, and an average of 250 patients. Its reception rooms for out-door patients were crowded to overflowing. The general operating room for third-class patients interested me more than anything surgical I have seen in Japan. Here 7 operations in one room were being performed at one time. It reminded me of Barnum's circus, it had so many attractions going on at one time. It had no preparatory ante-room for undressing or dressing. The anesthetic was administered and, in fact, everything connected with each case was done in this one room. Female as well as male patients were admitted and treated or operated on as their time came. I noticed one surgeon was operating for urethral stricture in the male, another setting a broken arm for a little boy, while another was doing gynecological work."

The medical centre of the country is the Imperial Hospital at Tokio. The distances from other parts of the country are comparatively small, and it has therefore become the custom for patients with complicated diseases to resort to it for treatment. The general impression one gets from Dr. Register's interesting paper is that Japan is in no way behind in the methods of surgery and medical treatment, but that it has not yet seen the necessity of multiplying institutions, a fact which we certainly cannot forthwith regard as unprogressive.

TWO PUBLIC DOCUMENTS.

WE have before us the yearly reports of the Pauper Institutions Department and of the State Board of Insanity. Both show that material progress has been made in the care and classification of the charges coming under the jurisdiction of the two boards.

At Long Island the hospital department has had a renewed stimulus given it in the establishment of a pathological laboratory. On this point the report of the Visiting Medical Staff reads: "No one thing has conduced more toward the rapid development of the hospital than the establishment of an adequate laboratory under the immediate direction of a salaried pathologist. It is now possible, for the first time in the history of the institution, to afford the sick the advantages which come directly and indirectly from modern laboratory methods of diagnosis and research. We are confident that the experience of this hospital will be like that of others, in which working laboratories have been established, in creating enthusiasm, fostering observation and accuracy, and thereby leading to the more intelligent treatment of the patients." The immediate future is also likely to see at this hospital the building of a nurse's home and a large model ward for the special care of tuberculous patients. In this ward the possibility of a city hospital for chronic consumptives is foreshadowed. In general this report shows that progress towards an adequate hospital for the treatment of chronic disease is being made, a fact which we note with gratification.

The State Board of Insanity in its report presents in clear form the problems to be met, and offers many admirable suggestions regarding classification and the more adequate treatment of the various types of mental disease. In view of the gloomy reports of the supposed increase of insanity which from time to time reach us, the following conclusions are of interest: That the increase of registered insane does not necessarily imply an increase of occurring insanity out of proportion to the growth of population; that the rate of increase of occurring insanity is certainly much less than the apparent increase of the insane; that there is a marked and growing tendency to commit all classes of the insane to institutions, especially in the case of old people, of the feeble-minded and of criminals; that a thorough inquiry into the specific causes of such tendency should be instituted as soon as possible.

To those interested in social problems, as well as in disease simply from a medical point of view, we cordially recommend a careful perusal of this scholarly report.

DEFEAT OF THE BILL TO REGULATE VIVISECTION.

WE note in another column the fact that the bill recently introduced into the legislature to regulate the practice of vivisection in Massachusetts was rejected without argument on the adverse report of the committee. Extended comment is unnecessary. To those who followed the discussion as presented at the State House, there could be no surprise at the final attitude of the committee. The same arguments, differently worded, that always have been, and always must be used, were employed, statements of fact on the one hand, and sentimentalism on the other. Unfortunate as it is that the world is so constituted that progress in medicine must be made by the sacrifice of animal life, the fact remains that such is the case, and that our knowledge of disease and its causes is likely in the future to be more and

more dependent upon this sort of experimentation. It is a hopeful sign, therefore, that the legislative committee, before whom the question was this year argued, was judicial rather than sentimental, and voted, as they in reason were obliged to, against a restrictive legislation, which would have been far-reaching in its harmful influence on the development of scientific medicine throughout the State.

MEDICAL NOTES.

The Woman's Hospital of Manila. — This hospital, which was founded on January 16, 1901, by a gift of $5,000 from Mrs. Whitelaw Reid, of New York, was designed to afford a suitable place for the care of cases of sickness and confinement, affording suitable facilities for the care of those able to pay, which was previously wanting in the city. A suitable house and premises were secured on February 16th, situated on Ceurval Solano in San Miguel, and having a water front on the Parig, thus making the hospital accessible by land and water transportation. Five trained nurses are employed. Miss Mary E. McDonald, a graduate of Bellevue and former chief nurse in the army service, is superintendent. The hospital is fully equipped, has "every modern appliance" for the care of the sick and is lighted by electricity. The hospital is under the charge of a board of eight trustees, and there are thirteen members on the Board of Consulting Physicians and Surgeons. Dean C. Worcester is president of the board of trustees. Such an institution must be of inestimable value to foreigners needing surgical or medical care in Manila. A directory for nurses is also a useful adjunct to the hospital.

Christian Science in Georgia. — It is reported that Judge Lumpkin, of the Superior Court in Atlanta, Ga., has ruled that Christian Scientists cannot practice their treatment of disease in Georgia without having been regularly graduated in medicine, or having passed an examination before the medical examining board, as is demanded of physicians. He furthermore holds that, according to the decision of a case in the Supreme Court of Nebraska, Christian Science is the practice of medicine, and that the practice of medicine in Georgia, according to the State law, must be done by persons who are regularly graduated from a medical school.

Plague in Various Places. — An investigation by the Marine Hospital Service shows the undoubted presence of plague among the Chinese in San Francisco, from which a few deaths have occurred. A recent estimate of the prevalence of the disease in Cape Town, South Africa, showed that altogether there have been 455 cases of the disease, of which 113 patients have been Europeans, and that the total number of deaths has been 185, including thirty-two Europeans. New cases continue to be reported, both among Europeans and natives. According to Hong Kong advices, 18,000 people have died of plague in the Lamko district of Hai Nan Island during the past few months.

Precautions Against Plague in Canada. — Special precautions are being taken to prevent the introduction of plague and smallpox into Canada. Orientals entering by way of the Pacific are compelled to undergo a bath at the quarantine station, and their clothing and effects are disinfected. Officers have been appointed to watch the boundary between Canada and the United States, and all suspected cases of smallpox are ordered into quarantine.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 1, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 68, scarlatina 19, measles 138, typhoid fever 9.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending April 27th was 246, as against 237 the corresponding week last year, showing an increase of 9 deaths, and making the death rate for the week 22.88. The deaths from consumption were 18, pneumonia 46, whooping cough 4, heart disease 27, bronchitis 3, marasmus 3. There were 5 deaths from violent causes. The number of children who died under one year was 55; under five years 76; persons more than sixty years 46; deaths in public institutions 82.

Suit for Alleged Injury from X-Rays. — A suit of $15,000 has been brought by a woman in the Superior Court at Salem, Mass., for alleged personal injuries received while undergoing x-ray examination for the purpose of diagnosticating an intra-abdominal disorder. It is claimed by the plaintiff that after three exposures of twenty, forty and fifty minutes, a blister appeared, which has not healed. This is said to be the first case of the kind which has come to trial in Massachusetts.

Failure of Bill for Restriction of Vivisection. — The Senate has accepted without debate the adverse report on the bill in further restriction of the practice of vivisection.

A Centenarian. — Mrs. Eunice Russ (Ames) Davis, the oldest resident of Dedham, Mass., died April 26th. She was born in Andover, October 26, 1800, making her at time of death one hundred

years and six months of age. Her mother is said to have been a full-blooded Narragansett Indian. She is survived by eight grandchildren.

NEW YORK.

Official Changes under the Amended Charter. — Among the changes of special interest to the medical profession effected by the amended charter of the city, which was passed by the legislature over the veto of Mayor Van Wyck and signed by Governor Odell, are the following: One Commissioner of Charities will succeed to the duties of the present board of three commissioners, and on February 1, 1902, the care of Bellevue Hospital, the Gouverneur, Harlem and Fordham Hospitals, and the Emergency Hospital will be transferred from the Department of Charities to a board of trustees, to be appointed by the mayor. The Health Department is to consist of one commissioner, appointed by the mayor, the police commissioner and the health officer of the port. At present there are five members of the Board of Health, a president and two commissioners (all appointed by the mayor) the police commissioner and the health officer. The powers of the Health Department, in respect to the supervision and inspection of tenements, are transferred to the new Tenement House Department, which will also have authority to regulate the construction or alteration of tenement dwellings.

The New York County Medical Association. — At the annual meeting of the New York County section of the New York State Medical Association, held April 15th, the following officers were elected: President, Dr. Parker Syms; First Vice-President, Dr. Alexander Lambert; Second Vice-President, Dr. Francis W. Murray; Recording Secretary, Dr. Ogden C. Ludlow; Corresponding Secretary, Dr. Montefiore L. Maduro; Treasurer, Dr. Charles E. Denison.

Smallpox at Foundling Asylum. — On April 24th 7 cases of smallpox, one of the patients being a nurse, were reported from the New York Foundling Asylum, on Third Avenue, making 17 cases of the disease in the institution within two weeks. It seems very difficult to understand why so much smallpox should develop among the inmates of such an institution, where it can scarcely be doubted that careful vaccination is very rigidly enforced.

The Society for Medical Jurisprudence. — The eighteenth annual banquet of the Society of Medical Jurisprudence was held at the Waldorf-Astoria on April 21st. Dr. Frank Ferguson presided, and among the toasts responded to were, "The Future of the Municipal Government and the Doctor and the Lawyer in It," by Judge Wm. J. Gaynor, and "Lawyer and Doctor," by Dr. Wm. M. Polk.

Miscellany.

REPORT OF JOINT COMMITTEE OF STATE CHARITIES AID ASSOCIATION.

A continuation of the happy results previously reported is shown in the report for the third fiscal year of the Joint Committee of the State Charities Aid Association and the Association for Improving the Condition of the Poor, which was formed in the interest of the children in the city's Infant Hospital on Randall's Island. The report of the New York County visiting committee of the State Charities Aid Association, in December, 1897, showed that of 366 infants under six months old admitted to the hospital during 1896, but 12 remained alive on April 15, 1897, a mortality rate of 96.7%. The joint committee, then organized, submitted to the Commissioner of Public Charities an offer to transfer a certain proportion of the infants to carefully selected boarding homes in the country, and the commissioners accepted the offer, agreeing to pay $2.00 per week per capita toward the board of the children, the committee to meet the additional expense. The work was begun in April, 1898, and the mortality among the infants thus boarded under the care of the committee has been as follows: During the years ending March 31, 1899, 55%; March 31, 1900, 31.1%; March 31, 1901, 18.9%.

In the providing of good permanent homes by adoption the committee has been equally successful, and during the three years a rapidly increasing number of children have been so placed. It has been found with surprise and pleasure that there are large numbers of childless families — many of them in very comfortable circumstances — who are not only willing but anxious to receive these unfortunates as their own.

Obituary.

WILLIAM H. DRAPER, M.D.

The death of Dr. William H. Draper, of New York, was announced April 26th. He was born in Brattleboro, Vt., October 14, 1830, was educated at Columbia College, and was also graduated in medicine at the College of Physicians and Surgeons. After serving at Bellevue Hospital, he studied in London and Paris. Returning, he became clinical professor of diseases of the skin at the New York College of Physicians and Surgeons in 1869, professor of clinical medicine in 1880, and professor emeritus in 1898. He was a trustee and also president of the College of Physicians and Surgeons before it was merged with Columbia, and he was a trustee of Columbia University from 1889 until his death. In the New York Hospital his service covered a period of thirty-nine years. He was first appointed physician in 1862, and in 1893, after four years as consulting physician, he resumed the more active work, and so continued until a year ago. Then he was again retained as consulting physician. He was attending physician at Roosevelt Hospital from the time of its organization in 1871 until he resigned and became consulting physician in 1897. He was also connected with St. Luke's, the Presbyterian and Trinity Hospitals and other institutions. He was president of the Academy of Medicine in 1886. Both as a man and as a physician

his death comes as a distinct loss to the community in which the greater part of his life was spent.

For many years Dr. Draper was one of the most esteemed consultants in New York. To unusual ability and skill were added the utmost refinement and a delightful charm of manner. Aside from his profession, he was a man of high attainments, and he was always an appreciative and liberal patron of music and art. He leaves a wife and eight children. His oldest son, Dr. William K. Draper, has for some time been associated in practice with Dr. Francis P. Kinnicutt.

Correspondence.

STATUS OF THE LAWS AND REGULATIONS IN REGARD TO IMPORTATION OF SURGICAL INSTRUMENTS BY HOSPITALS.

BOSTON, April 26, 1901.

MR. EDITOR: — I send you the following in regard to the importation of instruments by hospitals, as it seems to me that it will interest a certain class of your readers, and I will take for example the importations which have been made by the Massachusetts General Hospital.

Prior to July 24, 1897, and by the Customs Administrative Act of 1890, the law read:

INSTITUTIONS. — Philosophical and scientific apparatus, instruments and preparations; statuary, casts of marble, bronze, alabaster or plaster of Paris; paintings, drawings and etchings, specially imported in good faith for the use of any society or institution incorporated or established for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, and not intended for sale . . . . .

Before this law was changed, the Massachusetts Hospital had on several occasions imported surgical instruments and surgical glassware without any question of duty. They were always entered free. All of a sudden one of their importations of glassware and instruments was held up for duty on the ground that they were not scientific or philosophical instruments; that the surgical instruments were tools and the glassware was glassware. The hospital paid the duty under protest and argued the case before the Board of Appraisers in New York, producing witnesses and drawings of various instruments. The Board of Appraisers in New York sustained the decision of the collector, maintaining that the exhibit was not one of scientific and philosophical instruments. The hospital then appealed to the United States Circuit Court and the case was argued before Judge Colt, who decided, briefly, that they were scientific and philosophical instruments and as such were intended to be, by law, free from duty. The Treasury Department appealed from this decision, and the case was again decided in favor of the hospital by Judge Lowell, and the duties paid under protest were refunded; all this after a litigation of about three years, if my memory is correct.

The next importation of instruments which occurred after July 24, 1897, was also held up for duty, and it appears the law was changed by the revision of the tariff which went into effect in 1897, and the law read as follows:

INSTITUTIONS. — Philosophical and scientific apparatus, utensils, instruments and preparations, including bottles and boxes containing the same, specially imported in good faith for the use and by order of any society or institution, incorporated or established *solely* for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school or seminary of learning in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe . . . . .

the important change in the law being in the insertion of the word "solely"; "solely for religious, philosophical, educational, scientific or literary purposes." Duty was paid under protest on this importation and the case was argued before the Board of Appraisers in New York. They decided in favor of the Collector of the Port, on the ground that the Massachusetts Hospital was not established or incorporated as a seminary of learning or solely for scientific or literary purposes, and in fact, did not come under the head of Institutions which were intended to be exempt. The case was appealed and came up before Judge Colt again, in the United States Circuit Court. Judge Colt stated that the Massachusetts Hospital in effect did not come under the heading of these institutions which were intended to be exempt. The hospital, therefore, paid the duty and this is the present state of the laws regarding importation of instruments and utensils by hospitals.

I do not believe that the framers of this tariff really intended to exclude hospitals from the benefit of free entry when they were willing to allow "libraries, institutions of learning, religious, philosophical or fine arts institutions," to import free, and I feel very sure that if some effort were made to have this law repealed, it could be done without much trouble; and it seems to me the way to do it would be to have the representatives of every hospital write to their congressmen and call their attention to the fact that the law, previously in their favor, has been changed, and that it is a hardship which other institutions of a similar nature do not have to put up with, and that they request the law be changed to the old law before 1897.

Yours very truly,
C. G. WELD.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 20, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.
New York . .	3,437,202	1,368	428	26.46	15.13	2.70	.22	3.29
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore .	508,957	168	51	18.44	15.48	—	—	1.19
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	126	38	21.42	11.11	1.58	1.58	1.58
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	84	17	19.04	17.85	—	—	2.38
Boston . . .	560,892	229	68	26.66	24.04	3.79	.97	4.37
Worcester. .	118,421	30	5	10.00	23.31	—	3.33	—
Fall River. .	104,863	41	13	26.84	17.08	—	—	—
Lowell . . .	94,969	32	9	21.85	28.08	—	6.24	—
Cambridge .	91,886	33	10	30.30	12.12	3.03	—	3.03
Lynn. . . .	68,513	19	7	10.52	5.26	—	—	5.26
Lawrence . .	62,559	20	7	25.00	—	—	—	—
New Bedford.	62,442	21	6	14.28	4.76	4.76	—	—
Springfield .	62,059	37	9	13.50	5.40	—	—	2.70
Somerville .	61,643	17	2	11.76	17.64	—	—	—
Holyoke . .	45,712	16	7	12.50	12.50	—	6.25	—
Brockton . .	40,063	6	—	50.00	—	—	—	—
Haverhill . .	37,175	13	1	15.38	7.69	—	—	—
Salem . . .	35,956	10	1	20.00	20.00	—	—	—
Chelsea. . .	34,072	8	5	12.50	—	—	—	—
Malden. . .	33,664	9	—	22.22	11.11	—	—	—
Newton. . .	33,587	6	—	33.33	16.67	—	—	—
Fitchburg. .	31,531	9	5	—	22.22	—	—	—
Taunton . .	31,036	—	—	—	—	—	—	—
Gloucester .	26,121	3	1	—	—	—	—	—
Everett. . .	24,336	5	1	60.00	—	—	20.00	—
North Adams	24,200	7	4	—	—	—	—	—
Quincy . . .	23,899	9	—	11.11	33.33	—	—	—
Waltham . .	23,481	7	1	—	42.86	—	—	—
Pittsfield . .	21,766	8	—	12.50	12.50	—	—	12.50
Brookline .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	13	9	23.07	15.38	—	15.38	—
Medford . .	18,244	2	1	—	—	—	—	—
Newburyport	14,478	3	—	33.33	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,375; under five years of age 708; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 568, acute lung diseases 372, consumption 305, diphtheria and croup 65, diarrheal diseases 50, scarlet fever 49, influenza 2, typhoid fever 26, whooping cough 14, measles 15, cerebro-spinal meningitis 8, smallpox 10.

From whooping cough, New York 3, Pittsburg 2, Boston 2, Lowell 2, Chicopee 2, Worcester 1, Holyoke 1, Ever-

ett 1. From cerebro-spinal meningitis New York 4, Baltimore, Worcester, Lowell and Springfield 1 each. From scarlet fever, New York 37, Pittsburg 2, Boston 8, Cambridge 1, New Bedford 1. From typhoid fever, New York 13, Pittsburg 9, Boston 2, Fall River 1, Lynn 1. From measles, New York 10, Boston 4, Somerville 1. From smallpox, New York 10.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,089, for the week ending April 6th, the death rate was 19.2. Deaths reported, 4,341; acute diseases of the respiratory organs (London), 360, whooping cough 109, diphtheria 64, measles 105, fever 22, scarlet fever 39.

The death rate ranged from 9.7, in Croyden, to 27.7, in Liverpool; Birkenhead 11.8, Birmingham 24.2, Blackburn 19.9, Bolton 22.0, Bradford 22.1, Brighton 12.5, Bristol 20.0, Burnley 19.5, Cardiff 16.2, Derby 17.6, Gateshead 24.1, Halifax 22.4, Huddersfield 20.8, Hull 15.9, Leeds 18.4, Leicester 18.6, London 17.6, Manchester 24.3, Newcastle-on-Tyne 16.9, Norwich 18.8, Nottingham 21.2, Oldham 17.7, Plymouth 15.6, Portsmouth 14.1, Preston 18.2, Salford 24.7, Sheffield 19.8, Sunderland 23.4, Swansea 18.0, West Ham 13.6, Wolverhampton, 24.8.

METEOROLOGICAL RECORD.

For the week ending April 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...14	30.16	44	48	40	61	73	67	S.	E.	4	7	F.	F.	.0
M..15	30.04	44	47	40	66	70	68	N.E.	N.E.	27	20	O.	O.	.03
T..16	30.04	42	46	38	—	74	87	N.E.	N.E.	21	12	R.	O.	.76
W.17	30.20	42	46	38	70	87	78	N.E.	N.E.	20	15	C.	O.	T.
T..18	30.25	39	42	36	83	95	89	E.	E.	10	6	O.	O.	T
F..19	30.22	40	44	36	87	94	90	E.	E.	4	8	O.	C.	I.
S...20	30.12	40	43	37	—	—	—	E.	N.E.	12	17	R.	R.	.03
☞	30.15		45	38			83							

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

SOCIETY NOTICES.

AMERICAN LARYNGOLOGICAL ASSOCIATION. — The twenty-third annual congress of the American Laryngological Association will be held in New Haven, Conn., May 27, 28, 29, 1901.

NEW HAMPSHIRE MEDICAL SOCIETY. — The one hundred and tenth anniversary meeting of the New Hampshire Medical Society will be held May 16, 17, 1901, in Concord, N. H.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — The last regular meeting of the society for the season will be held at Sprague Hall, Medical Library Building, Fenway, on Monday, May 6th, at 8.15 P.M.

Papers: Dr. E. G. Brackett and Dr. F. J. Cotton will present a short communication entitled "Intermittent Hydrops." Dr. C. H. Alden, U. S. A., retired, will read a paper on "the U. S. Army System of Personal Identification." Dr. Weston P. Chamberlain, U. S. A., will read on "The Medical and Sanitary Conditions in the Philippines."

ARTHUR K. STONE, M.D., Secretary,
657 Boylston Street.

RECENT DEATHS.

ROBERT WILLARD GREENLEAF, M.D., M.M.S.S., of Boston, died April 28, 1901, aged forty-five years.

LAWRENCE JOHN MCDONOUGH, M.D., M.M.S.S., died in Lowell, March 2, 1901, aged forty-two years.

DR. ROY INGLIS, of Jersey City, N. J., died of tuberculosis at Denver, Col., on April 23d. He was graduated from the College of Physicians and Surgeons, New York, in 1890.

DR. JAMES S. CARRADINE, of New York, died at East Orange, N. J., on April 23d, of pneumonia. He was born in Yazoo, Miss., and was graduated from the Pennsylvania Medical College in 1858. During the Civil War he served as surgeon in the Confederate Army.

DR. FREDERICK J. BROCKWAY, an assistant demonstrator of anatomy and Secretary of the Medical Faculty of Columbia University, died of meningitis on April 21st. He was born in South Sutton, N. H., February 24, 1860. He was graduated from Yale in 1883, and from the College of Physicians and Surgeons, New York, in 1887. Dr. Brockway has devoted his life to scientific work and teaching.

DR. RICHARD C. BAKER, a prominent physician of Williamsburgh, Borough of Brooklyn, N. Y., died at Otsego, Otsego County, N. Y., his birthplace, on April 24th, at the age of forty-seven. He was graduated from the medical department of the University of the City of New York in 1874, and during the administrations of Mayors Chapin and Boody was Secretary to the Brooklyn Board of Health. Dr. Baker was on the visiting staff of the Eastern District Hospital, Williamsburgh.

BOOKS AND PAMPHLETS RECEIVED.

New-Yorker Brief. By Carl Beck. Reprint. 1901.

Annual Report of the Health of the Imperial Navy for the Year 1898. Tokyo.

Fissure of the Head of the Radius. By Carl Beck, M.D., of New York. Reprint. Illustrated. 1901.

Sonderabdruck aus dem Archiv für klinische Chirurgie. By Carl Beck, M.D., of New York. Reprint. Illustrated.

Sanitation and Yellow Fever in Havana. Report of Major V. Havard, Surgeon U. S A., Chief Surgeon. Reprint. 1901.

The Representation of Biliary Calculi by the Röntgen Rays. By Carl Beck, M.D. New York. Reprint. Illustrated. 1901.

The Relative Susceptibility of the Domestic Animals to the Contagia of Human and Bovine Tuberculosis. By R. R. Dinwiddie. Reprint. 1900.

The Theory and Practice of Military Hygiene. By Edward L. Munson, A.M., M.D. Illustrated. New York: William Wood & Co. 1901.

Contribution to the Surgery of Multilocular Renal Cyst. By Carl Beck, M.D., of New York, Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik. Reprint. Illustrated. 1901.

The Typhoid Epidemic Traced to its Origin. Complete Report of Dr. Mitchell, Bacteriologist of the Colorado State Board of Health, showing the Cause of the Recent Outbreak of Typhoid Fever. Reprint. 1900.

Diseases of the Heart. A Clinical Textbook for the Use of Students and Practitioners of Medicine. By Edmund Henry Colbeck, B.A., M.D. Cantab., M.R.C.P. London, D.P.H. Cantab. Illustrated. London: Methuen & Co. 1901.

Merck's 1901 Manual of the Materia Medica. A Ready Reference Pocketbook for the Practicing Physician and Surgeon. Compiled from the most recent Authoritative Sources and published by Merck & Co. New York and Chicago. 1901.

Three Thousand Five Hundred Questions on Medical Subjects. Arranged for Self-Examination. With Proper References to Standard Works, in which Correct Replies will be found. Third edition, revised. Philadelphia: P. Blakiston's Son & Co. 1901.

A Contribution to the Bottini Operation for the Radical Relief of Prostratic Obstruction. By L. Bolton Bangs, M.D., of New York, Professor of Genito-Urinary Surgery in the University and Bellevue Hospital Medical School; Surgeon to Bellevue Hospital, etc. Reprint. 1901.

Tumor of the Superior Parietal Convolution, Accurately Localized and Removed by Operation. By Charles K. Mills, M.D., Professor of Mental Diseases, and of Medical Jurisprudence in the University of Pennsylvania, and W. W. Keen, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College. With a Pathological Report on the Nature of the Growth. By W. G. Spiller, M.D., Professor of Diseases of the Nervous System in the Philadelphia Polyclinic. Reprint. Illustrated. 1900.

Original Articles.

Contributions on Typhoid Fever.

SOME REPORTED CASES OF TYPHOID FEVER ATTRIBUTED TO CONTAMINATED OYSTERS, WITH CERTAIN FACTS CONCERNING THIS MEANS OF INFECTION.[1]

BY CHARLES HARRINGTON, M.D., BOSTON.

In 1880, Sir Charles Cameron[2] brought to the attention of the profession, that oysters, transplanted from the coast of the County of Wexford to the Northern shore of Dublin Bay, had for some years been much subject to disease and had died in large numbers. Specimens which were examined were found to contain sewage matters, and investigation showed that the beds "were literally bathed in sewage." He offered the suggestion that raw oysters, taken from the shore close to sewer outlets, were, perhaps, as likely to act as the vehicle of typhoid fever and other diseases as contaminated water or milk, and advised that "oyster beds should not be laid down at any point on or close to the mouth of a sewer." But the warning appears to have excited no more than a languid interest until 1893, when the late Sir R. Thorne-Thorne, in a report to the Local Government Board, stated his belief that the sporadic cases of cholera which had occurred at various inland places in England in that year were due to oysters and other shellfish from sewage-contaminated water at Grimsby, where there had been a small outbreak of the disease.

In the following year occurred the well-known outbreak of typhoid fever at Wesleyan University, which was so ably and conclusively traced by Professor Conn of that institution to polluted oysters. His report,[3] a model of etiological inquiry, has been very extensively reprinted and abstracted, but in view of the recently aroused public interest in the possible danger to public health from the consumption of polluted oysters, I venture to rehearse briefly the essential facts of the outbreak, which not only was the first, but stands today the most thoroughly investigated, as well as the most extensive, case of its kind.

On October 20, 1894, several of the students were reported as slightly ill, with a moderate degree of fever. The number of cases grew from day to day, and shortly included several of undoubted typhoid fever. By November 1st, there were 20 cases of the disease, which number was shortly further increased to 23. All of the victims were of the male sex; there was no illness among the fifty-eight women students. Investigation completely absolved the water supply, the general and particular food supplies of the various boarding places, and the local conditions of the dormitories and outside lodgings of any suspicion of blame. It appeared that nearly all of the victims were members of three of the seven college fraternities. The combined membership of the three was about one hundred. On October 12th, eight days before the development of the first symptoms, all seven fraternities had had their initiation ceremonies and had celebrated in the usual way with a supper. Investigation of the origin of the components of the suppers showed that there was but one dish from a common source, and that was oysters. The three afflicted societies and one other had obtained their oysters from a local dealer; of the remaining three, two had had no oysters, and the third had had some from a dealer in Hartford. Of the four supplied by the local dealer, one had eaten the oysters cooked, and its membership was not invaded. Thus the trouble became sifted down to the raw oysters from the local dealer. But there was one victim who was a non-society man, and, clearly, his case could not be traced to the initiation supper. Investigation of his dietetic history established the guilt of the local oyster supply even more securely, for it was shown that he had eaten raw oysters from the same lot at the shop of the dealer. It was learned, too, that 5 men from Yale had attended the exercises of the societies in which the outbreak occurred, and inquiry developed the information that 2 of the 5 were seized with typhoid fever some weeks after their return to New Haven.

Further investigation revealed the fact that the incriminated oysters had been brought from a bed from Long Island Sound, and, on October 10th, two days before use, had been stored in a bed at the mouth of the Quinnipiac River, a short distance (300 feet) from the outlet of a private drain from a dwelling, in which 2 persons, mother and daughter, lay ill with typhoid fever.

Shortly after the publication of this case, Sir William Broadbent,[4] published the facts of a number of cases of typhoid fever, seen by him in consultation with several practitioners, which appeared to be connected with the ingestion of raw oysters, although no absolute proof was adduced, the evidence being purely circumstantial. His cases follow:

Case I. On November 12th, he saw a young woman who had been confined a month previously and had made a good recovery. The water and milk which she had taken had been boiled; the sanitary arrangements of the house were perfect; no other inmate of the house was sick in any way. In the course of her convalescence she had eaten some oysters, and ten days later she came down with typhoid fever of an unusually severe type, from which she did not recover.

Case II. On November 19th, he visited two young men, living in the same house, in which no other person was sick. Both the house and the place of business where both were employed were in good sanitary condition. They had been seized, simultaneously, with typhoid fever of an unusually severe form, for which there was no apparent cause, except that ten days before the appear-

[1] Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.
[2] British Medical Journal, September 18, 1880, p. 471.
[3] Medical Record, December 15, 1894, p. 743.
[4] British Medical Journal, January 12, 1895, p. 61.

ance of any symptoms they had had an oyster supper together. Both cases terminated fatally.

CASE III. On November 23d he saw a young woman, who, ten to fourteen days previously, had on two occasions eaten a half dozen oysters with a cousin of about the same age. She had a mild case of the disease, as did also the cousin, who in the meantime had gone to Italy, where she was seized.

CASE IV. On November 27th, he saw a man and wife who had come down with the disease at the same time in a house which was sanitarily perfect. No possible cause was apparent, other than the fact that, two weeks before, they had indulged in oysters. At the same time, he heard of a case of a child of eight years in a house in which no other person was sick, and for whose illness no other reason could be given than that, shortly before being attacked, he had eaten a dozen oysters at the house of some friends.

CASE V. On December 6th, he saw a young man who had been sick for three weeks with influenza and bronchial catarrh. He had partaken freely of oysters and had developed typhoid fever. No other person in the household, which was a large one, had been seized.

CASE VI. Early in December he had been called to the country, where typhoid fever was unknown, to see a clergyman and his daughter, twelve years of age, who were suffering from the disease. The sanitary condition of the house was good, and no other member of the household was sick. Inquiry showed that about two weeks before they had twice had oysters from London, and that they alone had eaten them.

Following the report of Broadbent's cases came a communication from Sir Peter Eade,[5] who called attention to the mussel as well as the oyster as a means of spreading typhoid fever, and mentioned having lately seen a case of the disease supposedly due to oysters, eaten ten or twelve days before the initial symptoms, while on a visit to London. A little later, Dr. H. J. Johnson-Lavis[6] related certain facts which he had noticed while in practice at Naples in 1879. Gastro-intestinal disorders were especially prevalent among strangers. They varied in intensity from evidence of simple irritation to the most severe forms of typhoid fever. He noticed that, whenever he and his wife ate oysters, they suffered from colic, diarrhea and tenesmus, and that gastro-intestinal symptoms in his patients very commonly followed eating raw oysters. These cases included chronic gastro-intestinal disturbances, very stubborn in character, and typhoid fever, often of a very severe type. He noticed, too, that though no sickness was caused by oysters at the several places along the Italian coast from which the Naples supply was obtained, when they were brought to Naples and kept for weeks and sometimes months in the harbor in a bed less than sixty feet removed from the outlet of one of the main sewers, their use was by no means unattended by risk. At this place, individual dealers stored their oysters in baskets, which were pulled up through the filthy water as occasion demanded. Some of the oysters were examined. They yielded evidence of sewage in the water between their shells.

Dr. Arthur Newsholme,[7] medical officer of Brighton, England, reported that, during 1894, 83 cases were reported to him as typhoid fever. In 15 instances, the original diagnosis was found to be incorrect, and an equal number were found to be imported cases. He investigated the probable causes of the remaining 53 cases, and decided that no less than 15 were due to oysters, and 6 to other contaminated shellfish (clams, cockles and mussels). In other words, 40% of the genuine cases of typhoid fever were due to these articles of food. In a later communication,[8] after a thorough examination of the cases occurring during a period of four years, he reported the percentages of cases probably due to oysters and mussels as follows: In 1894, 38.2; 1895, 33.9; 1896, 31.8; 1897, 30.7.

Chantemesse[9] relates the following case. There had been no case of typhoid fever in the little village of l'Herault Saint André de Sangonis for about a year, when, on February 15th, a shopkeeper received a consignment of oysters from Cette. The entire lot was consumed by 14 persons, all of whom were made sick. In the six dwellings in which the victims lived, no other inmates were sick in any way. Eight of the number were made only slightly ill, the symptoms, which included abdominal pain, vomiting, diarrhea, borborygmus, anorexia and general malaise, lasting but two or three days. The 4 youngest, who ate but a few, were very sick for a much longer time (fifteen to twenty-five days), but recovered. The stools were very offensive, were passed with pain, and were dysenteric in appearance; there was tympanites with tenderness and gurgling. All 4 were greatly prostrated. The remaining 2, a young woman of twenty and a young man of twenty-one, developed very severe cases of typhoid fever. The young woman died.

To satisfy himself as to the probability of oyster infection, Chantemesse secured specimens from several sources (Marenne, Ostende, Portugal, etc.) and made bacteriological examinations. They yielded an abundance of bacteria and many were found to contain B. coli communis. He placed some of them in water intentionally infected with typhoid stools and cultures, and after twenty-four hours, removed them and kept them another like period before subjecting them to bacteriological test. They yielded the typhoid organisms and B. coli communis in great numbers.

Dr. Mosny,[10] to whom the French authorities referred the whole subject of mollusk poisoning for investigation, has reported a case in which 5 members of a family of 7, living in a village in a suburb of Paris, in which there had been no case of typhoid fever in four years, were made sick

[5] British Medical Journal, January 19, 1895, p. 121.
[6] British Medical Journal, March 9, 1895, p. 559.
[7] British Medical Journal, June 8, 1895, p. 1285.
[8] Public Health, September, 1898.
[9] Bull. de l'Acad. de Méd., 1896, 35-36, p. 588.
[10] Rev. d' hyg., January, February and March, 1900.

after eating oysters sent to them from Cette. Four were seized in the evening of the following day with gastro-intestinal disturbance, which lasted twenty-four hours. On the eighteenth day, a youth of seventeen years developed unmistakable symptoms of typhoid fever, of which, nine days later, he died.

In March, 1897, Dr. T. Chatin [11] reported to the French Academy of Medicine the case of a family, of which several members were stricken after eating raw oysters from a bed which was contaminated by sewage matters. One member died. Many other such cases are to be found in foreign medical literature.

A very brief consideration of the viability of the typhoid and other organisms in the water retained between the shells and within the tissues of oysters and in sea water itself is now in order. The work of others than those quoted is merely confirmatory.

In 1889, De Giaxa [12] made a series of investigations of the influence of sea water on pathogenic bacteria, and found the following conditions to be favorable to growth and multiplication of microorganisms in harbor water: shallowness, stagnation and high temperature of surface water, abundance of vegetation, and admixture of sewage rich in organic matter. Certain pathogens were found to succumb very quickly to the influence of the ordinary species of water bacteria and others to be far less susceptible. Some were found to thrive well in sterilized sea water and retain virulence many days.

It was shown by Foote,[13] after the outbreak at Wesleyan University, that typhoid cultures, introduced within the shells of oysters from the bed from which the incriminated oysters were derived, were virulent at the end of forty-eight hours, which was the period which elapsed between the gathering and consumption of those which caused the outbreak. Furthermore, it was demonstrated that if the specimens were kept at 57° F., the organisms were active as long as a month later.

Dr. Joseph Polak,[14] of Warsaw, examined oysters from Ostend, Holland and Odessa, and concluded that, during transportation, the life processes have an undoubted inimical influence on bacteria, diminishing, and in certain cases, abolishing them completely. His conclusions were distinctly opposed to those of others who had determined that the typhoid fever organism lives longer in the tissues and juice of the oyster than in the sea water itself.

Klein detected B. coli communis in oysters from typhoid-infected beds, and has found that oysters, kept for a time in sea water intentionally infected with bacillus typhosus, yield the organism after four to eighteen days. Cholera bacteria were demonstrated in an active state after four to eighteen days. Wood subjected oysters to cholera-infected sea water and found the bacteria at the end of eighteen, but not after twenty, days.

According to Boyce, the typhoid organism will not grow in the tissues of the oyster, and, in fact, perishes rapidly therein if the oysters are removed to pure sea water. But, according to Klein and Foote, the organism lives, multiplies, and is virulent for a long time if the oysters are stored in polluted water. Klein found it virulent after three weeks, and Foote reported that, during the first two weeks of immersion in typhoid-infected water, it multiplies in the tissues of the oyster and then diminishes, but can still be found after thirty days. Other observers have found the bacteria of cholera and typhoid fever, B. coli communis, B. proteus vulgaris and other organisms, in oysters contaminated by sewage, and all unite in the opinion that the presence of B. coli communis should arouse suspicion and induce improvements in the management and supervision of oyster beds.

In the investigation of outbreaks of typhoid fever supposedly due to oysters, bacteriological proof of specific infection of those eaten or of others from the same lot always has been and always will be wanting, since, long before the appearance of the first symptoms of the disease, the material is no longer available for investigation. But, in view of the fact that pathogens have been found in the water between the shells of oysters from polluted beds; that they have been known to live for days in the tissues and retained water; and that, in the cases investigated, the beds have been found to be exposed to the influence of sewage, we may properly conclude that a causal relation is very possible.

The danger of infection arises wholly from the presence of sewage in the water where the oysters are planted or stored. The remedy lies either in transferring the beds to cleaner situations or storing the contaminated oysters in clean sea water until the bacteria have either perished or been washed away. What constitutes a sufficient length of time to insure purification is a matter of some disagreement. Many believe that a week is enough; others, that sixteen days should be allowed. They should not be stored where sewage matters can reach them through long distances by currents along the shore, nor where the prevailing winds can exert a harmful influence to the same end.

For a very thorough discussion of the subject of the proper management and supervision of oyster beds, the reader is referred to the exhaustive report of Dr. Mosny on the general subject of mollusk poisoning, published in *Revue d'Hygiene*, December, 1899, January, February and March, 1900, to which I am much indebted for many of the facts above given.

[11] La Semaine Médicale, 1897, p. 91.
[12] Zeitschr. f. Hyg., vi, p. 162.
[13] Medical News, March 23, 1895, p. 320.
[14] Sanitary Record, April 30, 1897, Supplement, p. 47.

A GIFT TO THE HOSPITAL OF AIX-LES-BAINS. — A daily paper is authority for the statement that J. Pierpont Morgan has donated $10,000 to the hospital of Aix-les-Bains, France, and that the municipality has shown its appreciation of the gift by presenting him with a "magnificent bouquet."

EXPERIENCE WITH THE WIDAL REACTION IN TYPHOID FEVER.[1]

BY CHARLES F. WITHINGTON, M.D., BOSTON,
Visiting Physician, Boston City Hospital.

THE general experience of the last four or five years tends to confirm the favorable impression of the value of the Widal reaction as a diagnostic sign in typhoid fever. The usual percentage of 95% of successful results indicates, certainly, a valuable diagnostic aid. The limitations of the test, however, as to the time of its first appearance, which is rarely before the sixth day, and often not before the ninth or tenth, are such as to deprive it of the value which one would like to attach to it for early diagnosis.

In the earlier years of its employment in the City Hospital, the failures which were noted were open to the criticism, in some cases, that insufficient numbers of tests were made. For example: the test would be applied on the patient's entrance and once or twice afterwards, and such cases were erroneously construed as failures of the Widal reaction.

During the last year, it has been the custom to perform the test more frequently than at first, and it has been found that while the reaction sometimes appeared at a very late period—twenty or twenty-five days from the onset of the fever—nevertheless it was generally eventually obtained.

The method of applying the test has been the following: A few drops of blood have been drawn from the patient's ear into a small section of glass tubing, sealed at one end by heat and left open at the other. After the serum has separated, 1 drop of it is mixed with 10 drops of an active culture of typhoid bacillus, twenty-four to thirty-six hours old. The dilution is, therefore, 1 to 11, or 9%. For a control, a few drops of the unmixed culture is usually put on the other end of the slide. If immobility and clumping are present in the serum culture mixture in course of one-half hour, the reaction is reported as positive, otherwise not. In the majority of cases the reaction appears in ten or fifteen minutes.

With the assistance of my house officer, Dr. H. H. Smith, I have been able to present the results of Widal examinations in all the cases of typhoid fever at the City Hospital during a period of six months, from May 28 to November 28, 1900. There were during this period 253 cases of typhoid fever in the hospital which were tested, repeatedly, by the Widal reaction, in all cases until a positive result was obtained. In 10 of these cases there was a constant absence of Widal reaction, or 4% of failures.

In Case I, which was under observation only three days during the fifth week of the disease, the Widal proved negative 3 times.

In Case II, the Widal was absent 10 times, first on the twelfth day, last on the thirty-third day of the disease.

In Case III—a case fatal from perforation on the twelfth day—it was absent in 4 tests.

[1] Read before the Clinical Section of the Suffolk District Medical Society, November 20, 1901.

In Case IV, it was absent 15 times between the tenth and fifty-fourth days of the disease.

In Case V, it was absent 7 times between the fourth and twenty-second days of the disease.

In Case VI, it was absent 12 times between the sixth and thirty-fifth days.

In Case VII, it was absent 6 times between the fifth and fortieth days.

In Case VIII, there were 14 negative tests; Case IX, 12; Case X, 11.

In all of the above cases, the clinical evidence of typhoid was satisfactorily conclusive, except in one where the diagnosis was from autopsy, and in which, during life, symptoms were uncertain. This case was, briefly, that of an Italian, speaking no English, who entered in an unconscious state without any history ever being obtained. There were no rose spots; size of spleen was doubtful; the abdomen was retracted; there was no diarrhea. In this case a lumbar puncture was made four days after entrance; fluid was clear and contained no organisms. The white blood count remained at 6,000 until the last day of life, when it arose to 14,000. The diagnosis remained in doubt, but the autopsy showed typhoid ulcerations, representing, in the opinion of the pathologist, the fourth week of typhoid fever. The spleen was enlarged, and cultures from the gall-bladder gave bacillus typhosus; the moderate leucocytosis may have been "terminal" or else due to a little abscess between the right lobe of liver and diaphragm.

Case II had many rose spots, spleen was palpable and the patient had intestinal hemorrhages.

Case III presents so many points of interest that I take leave to report it somewhat in detail. The patient, a boy of fifteen, entered September 7th, having had headache for twelve days, with watery greenish stools for a week. He kept about, however, till the day before entrance, when he went to bed and had epistaxis. Rose spots were present on the eleventh and the spleen was felt; temperature rather irregular. Widal tests negative on the second, fifth, eighth and tenth days. Plasmodia absent. The perforation occurred at 6 A.M. on the tenth day when patient was taken with sharp abdominal pain—general, not localized, without nausea or vomiting. One hour later onset of rigor lasting two hours. At 8.45 A.M. examination showed slight general distention with slight spasm, more marked in right lower quadrant. Temperature subnormal, pulse increased in rate, expression rather anxious and patient suffering considerable pain. Diagnosis of perforation made by Dr. Ames, in whose care he was. After administration of $\frac{1}{8}$ grain of morphia and $\frac{1}{150}$ grain of atropia patient's condition improved slightly. Heaters given and hot fomentations applied to abdomen.

At 9 A.M. seen by Dr. Lund and a few minutes later by Dr. Munro, who recommended transfer. Seen one hour later by Dr. Withington who confirmed diagnosis and recommended operation. Parents refused consent. At 12 (midnight). Patient has steadily grown worse, with rise of

pulse and temperature. Expression anxious, face rather pinched, complains of slight abdominal pain. Locally distension has increased, with marked spasm over whole abdomen. Considerable tenderness. Pulse poor.

September 16th (10 A.M.). Patient has had no nausea or vomiting, slept four hours during the night. Has had two stools since yesterday morning, both of which were well formed, light yellowish, without blood. General condition has grown steadily worse. Facies septic. Slight cyanosis. Abdominal distension more marked, with great rigidity and spasm, more marked on right.

September 17th. Since last note patient has grown steadily worse, though pain in abdomen is somewhat less. Abdomen excessively distended, tympanitic, resistant with general spasm. Facies pinched, anxious, slightly cyanotic, vomiting has been frequent and controlled only slightly by morphia. Died at 10.20 A.M.

The temperature dropped immediately after the perforation to 97°, but rose again to 102°. The white counts which were made during the fifty-two hours between perforation and death were interesting as showing the development of the peritonitis.

On September 15th, 9.20 A.M., whites, 8,800; 10.20 A.M., 14,300; 11.20 A.M., 8,600; 12.20 P.M., 12,800; 1.20 P.M., 10,600; 2.20 P.M., 8,400; 5.30 P.M., 10,600; 8.10 P.M., 14,300; 10 P.M., 13,000. On September 16th, 8.15 A.M., 20,000; 10 A.M., 22,200.

Case IV had a few rose spots, the spleen was felt and there were several intestinal hemorrhages. In this, as in all the previous cases, the temperature chart was characteristic of typhoid.

In Case V, the temperature curve was unusually brief, about twelve days, but the spleen was felt; there were headache, vomiting and chills at the outset; probable rose spots; plasmodia were absent and the case seems pretty certainly to have been typhoid.

In Case VI, the chart was also characteristic; no rose spots were seen; there was a low white blood count, and at the end of twenty-two days, phlebitis developed in the left leg, which recovered after two weeks.

In Case VII, there was a pneumonia at the outset, but the spleen was enlarged and a few probable rose spots were noted. The temperature subsided by the lysis typical of a typhoid fever.

The remaining cases were also fairly typical of typhoid, one of them, Case IX, having a phlebitis.

We have, thus, 253 cases of undoubted typhoid with 10 failures of the Widal reaction. But besides these, there were 6 other cases, in which, although the evidence is not perfectly conclusive, the diagnosis of typhoid was made, and they all seem to me to have been probably actual cases of the disease. In these the following number of negative Widals, respectively, was obtained: eleven, nine, five, five, nine, seven. For the reason that objection might possibly be made to the certainty of the diagnosis I have rejected them from the foregoing list; but if we were to include them, as we perhaps fairly might, we should have a total of 259 cases during six months, with a failure of the Widal reaction in 16, or a little over 6%.

A typical instance of the tardiness of the Widal response is illustrated in 1 case, where, after 8 consecutive failures, it was positive for the first time on the twenty-ninth day.

THE WIDAL REACTION IN TYPHOID FEVER.[1]

BY GEORGE B. SHATTUCK, M.D., BOSTON,
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FOUR years ago I presented a paper on the "Serum Test in Typhoid Fever," at a meeting of the Association of American Physicians, when I reported and attempted to analyse 125 cases of typhoid fever (clinical) at the Boston City Hospital in which the Widal test had been used.

The conclusions drawn from those cases at that time were as follows:

(1) The serum reaction may be obtained toward the end of the first week of typhoid fever, but is both more pronounced and more usual later in the disease.

(2) It may be present without a relapse at the end of the fourth month.

(3) It may be absent one day and present the next.

(4) Of 125 cases of typhoid fever (clinical) the reaction was absent in only 1 case. In 2 cases it failed, but there was in each only 1 test, in 1 case on the twelfth and in the other on the eighty-second day.

(5) In 19 cases of other diseases clearly uncomplicated by typhoid there was no reaction.

(6) In 1 case, where the diagnosis must remain doubtful, although typhoid cannot be positively excluded, there was a reaction.

(7) In a number of difficult and perplexing cases the serum test was of distinct service in establishing or correcting the diagnosis.

(8) This test will probably prove itself a useful aid to clinical diagnosis, and especially in hospital practice.

Dr. Withington's series of 259 cases from the same hospital, at this later period and after further experience, is comparable with my previous series and therefore, to me, at least, of a double interest. To supplement his cases, drawn from the three medical services over a period of six months up to November 27th, I have gone over the cases of typhoid fever (clinical) in my own service for a little more than two months from November 27th last to February 1st, 25 cases in all. I see no reason to essentially modify the conclusions reached four years ago and above reported. Out of these 25 cases, 1, with a non-typhoidal chart and otherwise somewhat doubtful clinically, gave a positive reaction on the tenth

[1] Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

day; 1 case with a clinical diagnosis of typhoid—chart, rose spots, gurgling, tympanitic abdomen, no spleen detected, course of four weeks — gave 5 negative Widals at intervals, no positive reaction, and was discharged well.

One case not included in the above, entering after three weeks' illness with doubtful clinical symptoms, gave 1 positive reaction. Subsequent tests were negative. This patient had been in the City Hospital two years before with typhoid fever accompanied then by a positive reaction. He subsequently developed pulmonary gangrene and died.

Among the cases included in Dr. Withington's statement were 2 occurring in the first two months of my service at the hospital this autumn, which should be grouped with the last 3 cases reported as exceptional. One of these entered with a history of four days' illness. The edge of the spleen could be felt, the abdomen was tympanitic, there was gurgling in the right iliac fossa, and a few possible rose spots. The chart was typical of the last week of typhoid, the patient was discharged well at the end of three weeks. The clinical diagnosis was typhoid fever, but there were 8 negative Widals. The other case entered with a history of illness for eleven days. There were numerous rose spots, a doubtful spleen, a tympanitic abdomen; whilst in the hospital there were two hemorrhages from the bowels. The chart was typical of the last ten days of typhoid. The patient was discharged well three weeks from entrance. The clinical diagnosis was typhoid, but there were 8 negative Widals.

In all 5 of these exceptional cases there was a low white count and the plasmodium malariæ was excluded.

My recent service of four months at the City Hospital, therefore, may be summed up as offering a total of 62 cases, with a clinical diagnosis of typhoid fever; of these 3 failed to respond to the Widal test. One case not included in the above, with a doubtful clinical diagnosis, gave a positive reaction. One case also not included, and doubtful at first but subsequently developing a different disease, gave 1 positive reaction but it was also learned that he had undoubted typhoid fever two years before.

I also find among my notes the following exceptional cases on the same medical service of the same hospital occurring between July 15, 1898, and January 1, 1899, during which time there were 140 cases with a clinical diagnosis of typhoid fever.

CASE I. Seven negative Widals. Typical history and chart, epistaxis, rose spots, enlarged spleen and abdominal tenderness.

Diagnosis. — Typhoid fever.

CASE II. One positive Widal. History referable to thorax, no spleen, irregular temperature, tubercle bacilli found, later meningeal symptoms.

Diagnosis. — Tuberculosis.

CASE III. Positive Widal. Patient had malaria; plasmodium found. Died five days following admission.

Autopsy. — Enlarged and pigmented spleen and liver, no ulceration of Peyer's patches nor other typhoid lesions.

Diagnosis. — Malaria.

CASE IV. Positive Widal. Sudden onset, chills, yellow expectoration, pain in chest, consolidation of right lower lung, crisis on ninth day, normal temperature following.

Diagnosis. — Pneumonia.

CASE V. Two negative Widals. Soldier, indefinite history covering last two weeks, enlarged spleen, rose spots, symptoms of perforation, death.

Autopsy. — Typhoid perforation. Many ulcerated Peyers patches. Malarial pigment.

Diagnosis. — Typhoid with perforation.

CASE VI. One positive followed by 2 negative Widals. Transferred from surgical ward; only symptom, a pain in left lumbar region, later in abdomen. Three months later still in hospital, in gynecological service, with probable tuberculosis of kidney.

CASE VII. Five negative Widals, 1 positive after normal temperature for four days and well into convalescence. Two negative Widals were obtained after sharp hemorrhage from bowel. History of four weeks duration before entrance and in bed one week. Typical chart; symptoms: spleen, rose spots, hemorrhage.

Diagnosis. — Typhoid.

CASE VIII. Two negative Widals. In bed most of time for past four weeks, gave typhoid history, elevated temperature, much enlarged spleen which has diminished progressively, typical typhoid stools, dull, apathetic, gurgling in fossæ, temperature declined by lysis.

These dates covered the cases resulting from the Spanish War.

Many cases of "soldiers" having malaria gave positive reactions, but owing to the inability to disprove the occurrence of typhoid while at the South, they are not included.

MEANS OF INFECTION IN TYPHOID FEVER.[1]

BY E. N. WHITTIER, M.D., BOSTON.

DR. HARRINGTON'S paper is most acceptable and timely. He backs up his own opinion with a synopsis of the views of other and preceding observers; the joint conclusions carry conviction.

My own experience has made me very apprehensive regarding the course of typhoids occurring in families whose summers have been passed away from the city—rural and not urban in the source of the infection, imported and not native, malarial and not straight. The typhoid of city origin may be atypical and puzzling; care and restrictions may be as prolonged, but it is without the terror, the destructiveness, the lethal drift characteristic of country typhoids.

[1] Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

I doubt very much if we appreciate the great and good work of our brethren in the village and farm districts of our northern New England States, where the high potency of typhoid infection often resembles that of dynamized solutions, and the malignancy of the process is frequently fulminating in its short and deadly course.

Fall fever, a north-country name for typhoid, is more dreaded there than any other infectious or any contagious disease—smallpox alone excepted. The farm well must remain practically as it is; the hill-side spring and piping, the meadow brook and hydraulic ram—I have seen them all—are inoperable, to borrow a surgical term, for several months yearly in a region where the ground freezes post-hole deep on the farm of the milk producer; the vaultless privy and the kitchen cesspool will continue to menace the health of every family within their sphere of influence, until the dairy and its adjuncts receive the same care and supervision as that now given the cattle in the matter of tuberculosis. Milk infection and its results are too widely known to call for other remarks.

A single case of typhoid, high up on a mountain stream, the water supply of Plymouth, Pa., resulted in a thousand cases of typhoid and a fatality of 10%. The Spanish bullets at El Caney and Santiago were not more fateful in their course than the flies from the latrines and cesspools at Chickamauga in the camps of 1898.

Milk infection, water supply pollution and camp food infection by flies—these are widely known; not so, however, until recently, the subject matter of Dr. Harrington's paper.

I suppose the occasion for this discussion is to be found in the outbreak of typhoid in the Boston colony, summer residents at Marion, Cape Cod. Marion has a winter population of 500, that of summer is estimated to be between 1,400 and 1,500. The village is delightfully located on the western shore, the deep water side of Sippican Harbor, an arm of Buzzard's Bay, about two and a half miles long with greatest width of about one mile.

The village water supply is largely from artesian wells, each on the premises of the owners of the house lots. Late in September last, I saw the first of a series of cases originating in the village, on October 9th, the second, and on October 13th, the third; afterwards there were 2 other cases (but not among my people), all residents of Boston in the winter and within easy pistol-shot of Charlesgate East. How many other cases in families or of people from other cities no one knows.

One case originated at the northern end of the village, 3 at the southern, a mile away, and yet another midway between. Neither milk, nor water, nor food supply in any form were common to all. If it was true that the village market-man kept his greens bright and his vegetables fresh by water from a polluted well, it is also true that he did not supply the families of my patients.

There is no sewage system in Marion. Residences erected along the water-front drain down to the shore, few have cesspools, so that for a mile or more, houses, shops, fish markets, stables, academy and hotel pour their sewage into the incoming and outgoing tide.

Up to last fall the Marion oyster, native to the region, had been the pride and glory of the place; on the deep shell he had no superior; he came next after grace at all the good dinners the place is so famous for; whatever else was absent, he was present at all functions; he was introduced to guests as a desirable acquaintance.

A house party of 6 sat down to oysters on a blazer, 3 of the number had typhoid. A plain or even a fancy roast is mere child's play to a microbe that hibernates in a cake of ice and comes up smiling the next summer.

Blenkinsop's Cove, a mile or more long, on the eastern side of the harbor and about a mile across from Marion Village, had been the chief source of the supply for the summer trade, until in midseason the demand increased and emergency calls arose; then, for convenience in quick delivery, etc., the clean oysters from across the harbor were kept in storage in places polluted by filth and contaminated by sewage. The State Board of Health reports the bacillus coli communis in oysters taken from various places on the village side, none in oysters from Blenkinsop's Cove.

This Marion outbreak, of small proportions fortunately, nevertheless has had wide influence; but the oyster was not so much at fault after all. A Virginia ham soaking in such waters would afford an example of food infection.

EARLY DIAGNOSIS OF TYPHOID FEVER BY ISOLATION OF BACILLUS TYPHOSUS FROM STOOLS; CONCLUSIONS OF DR. L. REMY BASED ON THE USE OF HIS ASPARAGIN-LACTOSE-CARBOL GELATINE.[1]

BY CALVIN G. PAGE, M.D., BOSTON,

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It is almost impossible to isolate the bacillus of typhoid fever from a mixture containing the common colon bacillus by means of plate culture with the ordinary nutrient gelatine or agaragar. This is not due to any antagonism between the two organisms, but is the fault of the culture medium. Many men have tried to invent a medium that could be used to separate the typhoid from the colon bacillus.

One of the most noted of these, Elsner, in 1895, successfully used a gelatine medium made from the juice of potatoes. Other observers failed to obtain his results on account of the great variations in the chemical composition of potato.

In 1896, a Belgian, named Rémy, devised a gelatine medium made with asparagin and definite amounts of several salts to correspond to a chemical analysis of potato. With this he successfully separated laboratory cultures of typhoid and colon bacilli, and later on cultures derived from stools

[1] Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

of typhoid patients. Just before using he adds to each tube of medium a little milk-sugar, and two drops of a 1–40 carbolic acid solution. The culture or feces is diluted twice, first about 1 to 40, second about 1 to 8,000. One or two loopfuls of this second dilution is mixed with a tube of melted medium and poured onto a glass plate. Colonies appear after two days at room temperature. The smaller and paler colonies are probably typhoid, but the appearance of the colonies is never sufficient for a diagnosis. Little cubes of gelatine containing each one colony are cut out and transferred to several tubes of bouillon. Examination of these tubes after a short incubation will show whether or no the organism is a motile bacillus. Some of it is then transferred to milk-sugar gelatine and incubated to see whether gas bubbles will develop. The bacillus must be tested with known typhoid serum to see if it will clump, and the bouillon culture tested for indol. If the bacillus clumps in the presence of typhoid serum and produces neither gas nor indol it may be said with certainty to be typhoid. If it does not clump and produces neither gas nor indol it may yet be typhoid, for typhoid bacilli when living together with colon bacilli may gradually lose their sensitiveness to typhoid serum. If gas is produced the culture is certainly colon bacillus.

Early in 1889 Rémy began to apply this method to the examination of stools of typhoid patients. During the year he made 31 examinations of stools from 23 cases of typhoid fever, and isolated the typhoid bacilli from every case. One examination was negative because the dilution was not sufficient, another because it was too great. Repetition in these cases, however, gave positive results. One case on the fifty-eighth day gave a negative result, though an earlier trial was positive. The earliest of all the examinations was on the third day of the disease, the latest on the forty-fifth day. Early in the disease the typhoid bacilli are present in relatively small numbers. They increase considerably during the second week, and may sometimes be almost the only bacterium present. During the third and fourth weeks the number diminishes steadily.

In two cases where an unusually large number of typhoid colonies developed on the plates, the patients died soon after the examination. In all the cases the typhoid bacilli had the same characteristics. They did not produce indol, they did not make gas from milk-sugar, and when mixed with typhoid serum they clumped promptly. The bacilli isolated during the second week grew rapidly and abundantly, while those isolated toward the end of the disease showed less vigor. In 3 cases the typhoid bacilli were found in the stools before the serum reaction or any other sign of typhoid fever was present. Consequently the presence of the typhoid bacillus with its specific characteristics is the only sign that, taken by itself, will justify the clinician in making a certain diagnosis. It is also the only sign that cannot fail. Control examinations of the stools from 12 patients with other diseases failed to show the typhoid bacillus. The constant presence of the typhoid bacillus in the stools of persons sick with typhoid fever and the absence of it in the stools of other patients, Rémy offers as additional proof that the bacillus is the true cause of the disease.

I have made three lots of gelatine after the formula of Rémy, but cannot yet give any conclusion based on personal experience. The time required to make a report is at least three days.

Those who have used a method described by Piorkowski say that it is valuable and worth further trial. McConkey working in the Thompson-Yates Laboratories, in Liverpool, has had very encouraging results by adding bile salts to a medium for separating typhoid and colon bacilli. There is, therefore, good reason to hope that a method will be devised by which a report of examination of feces can be made in less than three days.

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THE FEVERS OF THE PHILIPPINES.[1]

A PRELIMINARY REPORT ON THE NATURE OF THE FEVERS PREVALENT IN THE PHILIPPINE ISLANDS, INCLUDING TYPHOID FEVER, MALTA FEVER, THE MALARIAL FEVERS AND UNDETERMINED TROPICAL FEVERS.

BY JOSEPH J. CURRY, M.D.,

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TYPHOID FEVER.

TYPHOID fever existed among our troops in the Philippine Islands to a considerable extent. There is hardly a command that has not lost men by it, still typhoid fever never has assumed anything near the epidemic form as occurred in the camps in the United States during the Spanish-American War, and as now prevails in the English Army in South Africa. Some cases of typhoid were undoubtedly brought over in the early expeditions from San Francisco to Manila, but it is more than probable that typhoid fever existed widely in the Philippines at the time of our occupation.

Our troops occupied many of the old Spanish camps. From these camps came a large number of the cases of typhoid fever. The camps at the

[1] Extract of a Report to the Surgeon-General of the Army, on the Diseases of the Philippine Islands. (By permission of the Surgeon-General.)

Deposito near Manila, and at Calamba on the Laguna de Bay, especially were the source of many cases. These places had been used by the Spaniards for military camps for years. At Calamba the disease assumed epidemic proportions. Here in March, in 1900, there occurred considerable of an epidemic in the two companies of the Forty-second Infantry stationed there. Out of 16 men of these commands in the First Reserve Hospital (Manila) on March 16, 1900, 14 had typhoid fever. In each case a positive Widal reaction was obtained. Later in May and June, two companies of the Thirty-ninth Infantry were stationed at Calamba, and typhoid occurred to a considerable extent among them.

Malarial fever and dysentery were also prevalent at Calamba. In every command that camped at Calamba, there occurred a number of cases of typhoid fever, of malaria, and of dysentery. These old infected Spanish camps have been the source of a great amount of sickness among our troops. It has been difficult, if not impossible, for military reasons, to avoid occupying such camp sites.

Typhoid fever undoubtedly existed among the Spaniards and natives before our occupation. To what extent it is impossible to state. The Spanish and native records as to the cause of death in Manila are absolutely worthless. Over 70% of the natives never see a doctor. Most diagnoses were made by the Spanish or native doctors after death, on the symptoms as described by the deceased's friends. Post mortems were practically never held save in the medico-legal cases under the Spanish régime. There was no pathological laboratory in Manila before the establishment of the army pathological laboratory at the First Reserve Hospital. In consequence, there is no reliable information to be had from the Spanish records. From information given me by both Spanish and native physicians, typhoid fever has existed for years in Manila. These physicians claim not to any great extent, but it is probable that typhoid fever was widespread before our arrival in Manila.

I performed one post mortem on a Chinaman who died at the San Juan de Dios Hospital in Manila. He died of intestinal hemorrhage. Autopsy showed typical lesions of typhoid fever, the post-mortem blood gave the Widal reaction, and the bacillus typhosus was obtained in cultures from spleen and mesenteric glands. This case had been diagnosed "tuberculose" by the attendant doctors at the hospital. At Calamba typhoid fever was found existing among the natives in a small barrio not far from the American camp. In one house located near a stream from which the soldiers were accustomed to drink, typhoid fever was found among the inmates, by Assistant Surgeon Lewis, U. S. Army, who was sent by the chief surgeon to investigate the cause of the typhoid epidemic in the two companies of the Forty-second Infantry.

We have abundant evidence that typhoid fever existed in and near Manila before our occupation. Out of the 20,081 medical cases treated at the First Reserve Hospital, 653 were typhoid fever. Of this number 93 died, a death rate of less than 15%. This is a remarkably low death rate for a tropical country and speaks highly for the Medical Department of the Army. This is less than one-half the death rate reported by the English Army surgeons for tropical countries (Manson). This low death rate is no doubt in part due to the *early recognition* of the disease *as typhoid*. The laboratory has rendered valuable service in this alone. There were 40 post mortems performed on this disease at the First Reserve Hospital from March, 1899, to June, 1900.

The immediate cause of death in over one-third of these cases was either perforation of the intestine or hemorrhage from the intestine. Among these 40 cases, death was due in 8 to a perforation of a typhoid ulcer of the intestine, and to intestinal hemorrhage in 5. In this series there was 1 case of typhoid fever without intestinal lesions, 1 of typhoid and estivo-autumnal malaria combined, and 2 of typhoid fever and amebic dysentery combined. In one of the latter there was also pulmonary tuberculosis, The study of these post mortems, and their complications, and the combined infections of typhoid fever in Manila, will be the subject of a special report later. It is instructive to compare the death rate among our troops from typhoid fever before and after the Philippine insurrection. From the occupation of Manila on August 13, 1898, to the outbreak of the insurrection early in February, 1899, there occurred 337 cases with 34 deaths, a mortality of practically 10%. From February, 1899, to June, 1900, there were 316 cases treated in the wards of the First Reserve Hospital, with 59 deaths, a mortality of nearly 19%.

One explanation of the higher mortality in this latter series of cases lies in the fact that these men, by prolonged subjection to fatigue of campaigns and the tropical climate, had less power of resistance than the troops fresh from the United States, with only camp routine duty to perform. That typhoid fever has not been more prevalent among our troops in the Philippines is remarkable. The great majority, if not all, of the regiments have had cases of typhoid fever, most of these had one or more fatal cases. With every opportunity for the spread of the disease, it is a great wonder that it has not assumed epidemic proportions before this. It is possible that the breaking up of the regiments into small commands and the frequent changing of camps is responsible for checking the spread of typhoid fever. No doubt some of the deaths reported as due to dysentery and to the malarial fevers were typhoid fever.

In stations distant from Manila it was not possible to have blood examinations performed, and then, too, it must be remembered that dysentery and typhoid fever may occur at the same time and the dysentery mask the typhoid. In the post mortems at the First Reserve Hospital there occurred 2 such cases. These men were admitted for dysentery, and the pronounced clinical symptoms were of dysentery.

The danger of the future is that when camps become more permanent that typhoid may increase among the troops. Typhoid fever is more severe in the tropics naturally than in a temperate zone. The mortality is normally certain to be twice as great. The prevention of typhoid fever among the troops in the Philippines is a serious problem. It was my intention before I left the Islands to request permission to try the prophylactic inoculation method which has been so favorably reported on by Wright and other English Army surgeons. The prophylactic inoculation method is worthy of serious consideration as to its adoption for troops departing for the Philippines and for those already there.

MALTA FEVER.

I had the honor to report to the Surgeon-General on January 2, 1900, 4 cases of Malta fever, which came under my observation at the First Reserve Hospital, and which originated on the Island of Luzon, P. I. In subsequent investigations 12 additional cases were found, in all of which repeated blood examinations were negative for typhoid, and for the malarial parasites, and a positive serum reaction with the micrococcus melitensis was obtained in a dilution of at least 1 to 60. The clinical history of each of these cases was that of a long-continued fever with periods of apyrexia, not influenced by quinine administered in large amounts. Typhoid symptoms were absent. Neuralgic and rheumatic symptoms were generally present and a general glandular hyperplasia existed.

It is to be regretted that more work could not be done on the study of this disease in the Islands. In March I was assigned to duty with the Manila Board of Health, and owing to my connection with the work on plague, I could not carry on my investigation on Malta fever.

The first case was found at autopsy July 26, 1899, by Assistant-Surgeon Strong. Corporal J. T. W., "G" Company, Fifty-first Iowa Volunteers, died after a long-continued fever diagnosed clinically as typhoid fever. At autopsy no lesions of the intestines were found. There was a large acute splenic tumor and a general acute lymphatic hyperplasia. The cultures from this case examined in twenty-four hours were apparently sterile. Fortunately the cultures were saved. They were left in the thermostat for five or six days, and at the end of that time a growth was observed in the plates from the spleen and liver. The growth proved to be the micrococcus melitensis. When I reported for duty at the First Reserve Hospital I found Dr. Strong ill, with an ill-defined irregular fever. Repeated blood examinations were negative for malaria and typhoid fever. Physical examination was negative but for a general glandular enlargement. As Dr. Strong had been experimenting with his culture of the melitensis recently, my suspicions were aroused, and I tried Widal's test with his blood serum and the micrococcus melitensis. On the sixth day of his fever a positive reaction was obtained in 1 to 100.

Dr. Strong's case proved to be a mild one, accompanied by moderately severe headaches and neuralgia. Within a few days of the beginning of Dr. Strong's illness, a case from the Second Reserve Hospital came to the First Reserve Hospital mortuary for autopsy. I performed the autopsy on this case. Clinically the case (a private of the Twelfth Infantry) presented a history of continued fever for six weeks, not controlled by quinine. At autopsy a general lymphatic acute hyperplasia was found and acute splenic tumor. Spleen weighted over 500 grammes. There were no intestinal lesions. Cultures from blood, spleen, liver and gall-bladder and mesenteric glands were negative for the typhoid bacillus. After three days in incubator cultures from spleen: mesenteric glands and blood showed a faint growth, which proved to be micrococcus melitensis.

I then commenced systematic blood examinations, including Widal's test with micrococcus melitensis, on all cases of continued fever in which blood examinations were negative for typhoid and malaria. I was only able to continue this work for six weeks, but during that time were found the 12 cases referred to above. In all 17 cases have been observed in the Philippine Islands, including 2 autopsies, 1 by Dr. Strong and 1 by myself. These cases were distributed through twelve different regiments, occupying stations in different places in the Island of Luzon.

From this I believe that Malta fever is not an uncommon disease in the Philippines. The name Malta fever is an unfortunate one. Recent reports have shown that Malta fever is not only prevalent in Malta, Gibralta, Corsica and other Mediterranian countries, but cases have been reported by the English Army surgeons, Wright and Smith, from Calcutta and other India stations. One case has been reported by an English Army surgeon which originated in Hong Kong, and several cases have been reported in the United States. One by Assistant-Surgeon Cox, U. S. Army, in an American army officer from Puerto Rico, and 1 case by Musser, of Philadelphia. It would appear that Malta fever is by no means as limited, geographically, as has been thought heretofore. Further investigation of this disease may throw considerable light on a class of continued fevers in the tropics, described by various observers under such names as double fever, relapsing fevers, rheumatic fevers, etc., etc.

THE MALARIAL FEVERS OF THE PHILIPPINES.

In the Philippine Islands, as in all tropical countries, the malarial fevers are widespread. These fevers, as a rule in the Philippines, are not nearly so severe as we were led to expect, after the experience of our troops during the Santiago Campaign in the Spanish-American War. Compared with other tropical countries, the malarial fevers of the Philippines are not severe. While the character of these fevers is generally mild, still there are exceptions to this rule. In some localities malaria assumes a most pernicious character.

In speaking of malarial fevers as comparatively mild, I do not wish to be understood as saying that these fevers are of minor importance in the Philippines. On the contrary, while the malarial fevers here are directly the cause of but relatively few deaths, they are, by reason of the debility and anemia caused by them, a very serious factor in the production of disease in these Islands. It is impossible to estimate how much sickness and debility among the troops malarial fever has helped to produce.

These fevers in the tropics are so widespread that the majority of people sooner or later become infected by the malarial parasite. In tropical countries we have every condition favorable for the development of the malarial parasite outside of and in the human body, as well as the constant presence and activity of the common (if not the only) disseminating agent of the parasite, the mosquito. In addition to the constant presence of the malarial parasites, and the malarial-conveying mosquitoes (the anopheles), the depressing influence of the tropical climate lessens the individual's normal resisting powers, and thereby prepares a favorable soil for the invasion by the parasites. One attack of malarial fever predisposes to another. After the primary invasion by the malarial parasites, a considerable length of time may elapse, even after active symptoms of the disease have subsided, before the individual is free the danger of a recurrence. The parasites remain dormant in the viscera, often for a long time, and are called into activity again and again by any cause lessening the individual's power of resistance. This cause may be either the prodromal or the convalescent period of some acute disease, during some chronic disease, or it may be a slight temporary disturbance due to fatigue, or exposure to the sun or rain.

Thus it is that malarial fever very often complicates other diseases in the tropics. In our investigations we found it complicating surgical cases (such as gunshot wounds, fractures, appendicitis, etc.), and also nearly every acute and chronic disease. As a rule, malarial fever, in the course of other acute diseases, occurs during their convalescence. In typhoid fever, for instance, malarial parasites rarely are active save after convalescence has been established, and the temperature normal for some days. Occasionally malarial attacks appear early in some acute disease or in the prodromal period. It is rare to find the parasites when once the acute disease is fairly established, until after the convalescence begins.

Prevalence.— The malarial fevers were responsible for a larger number of admissions to the First Reserve Hospital than any other one disease. Out of a total of little more than 20,000 medical cases, 4,643 or 23% were diagnosed malarial fever.

Geographical distribution.— In consequence of the above-mentioned favorable conditions common to all tropical countries, the malarial fevers occur to a greater or less extent throughout the entire group of the Philippine Islands. Some of the smaller islands have been reported as being free from malaria and in some of the stations in the southern islands, occupied by our troops, it has been asserted that malarial fevers are absent. On the other hand, scattered through Luzon and the southern islands, severe malaria exists in localities. Often these districts are limited to small areas, a few miles outside of which malaria is mild in character and comparatively infrequent. Severe malaria exists on the Island of Luzon in the Laguna de Bay district and in a number of districts in the north and south. Similar areas also exist in the Island of Cebu. In the city of Manila the type is not severe.

Types of the Philippine malarial fevers.— The types met with were the same as are found in other tropical countries, namely, the estivo-autumnal, the tertian and the quartan. There was this important *difference* from other tropical countries, however, which explains in part the comparative mildness of the Philippine malarial fevers. The predominating type of malarial fevers reported in other tropical countries is the estivo-autumnal. In fact, the term "tropical malaria" is generally understood as meaning estivo-autumnal fever. While tertian fever has been observed as a common type in the tropics, still it has been reported as usually occurring in connection with the estivo-autumnal variety, and has not been found nearly so frequently as the last named.

In the Philippines a much larger percentage of the malarial fevers appears to be due to the tertian parasites than has been reported by investigation in the other tropical countries. In 223 cases of malarial fever in which the parasites were found in the blood, in cases observed in the First Reserve Hospital, Manila, P. I., there occurred the estivo-autumnal parasites in 166, the tertian in 53, the quartan in 1, and the tertian and estivo-autumnal combined in 3.

Taking the pure infections (220 cases) alone, the tertian parasite occurred in 53 out of 220 or 24%, the quartan in less than one-half of 1%, and the estivo-autumnal in 75%. These figures are only the apparent percentages of the frequency with which these various types occur. The great majority of the soldiers admitted to the military hospitals for malaria came in saturated with quinine. It was the usual custom in such cases, diagnosed malaria on admission (who had fever), to administer quinine immediately. In the face of this it can be readily seen how difficult it would be to find the parasite in the peripheral blood in cases of tertian fever. On the other hand, the crescents and ovoid bodies of the estivo-autumnal fevers are little affected by quinine and are easily found.

Out of the 1,187 examinations of the blood made at the First Reserve Hospital in cases diagnosed as malarial fever in but 223 malarial parasites found, all the rest (964) were negative. Of course many of these 964 were not malarial fever, but it is more than probable that a large number of these cases were infections by the tertian malarial parasites. The clinical history of many of these cases

was that of tertian or double tertion infection. This view of the frequency of the occurrence of the tertian malarial fever seems to be borne out by the results of the post-mortem examinations at the First Reserve Hospital.

Out of the 240 autopsies on medical cases at the First Reserve Hospital, an acute malarial spleen and other evidences of malarial fever occurred in 17. (In each of these 17 cases, the malarial parasites were found, post mortem, in coverslip preparations made from the splenic pulp.) Of these 17 cases, 8 occurred in conjunction with other diseases, and in 9 death was due to malarial fever and the pathological condition resulting from the malarial infection alone. Of the 9 cases of pure infection, 4 were due to the tertian parasites and 5 to the estivo-autumnal parasites. When it is remembered that the estivo-autumnal infections are usually far more fatal than the infection by the tertian parasite it would seem from this that tertian malarial fevers must occur in a large percentage of the cases. In fact we may be justified in supposing from this evidence that tertian malarial fever is fully as common as the estivo-autumnal variety in the Philippines.

Reports from the Army medical officers, received from stations throughout the Islands, of the mild character of the malarial fevers and its ready yielding to quinine, would seem to confirm this opinion as to the relative frequency of the tertian variety. As to the morphological and biological characteristics of the parasites of the Philippine forms, no essential differences were noted as compared with those observed by myself in the United States in soldiers at Fort Myer, Va., Savannah, Ga., and from Cuba.

The parasites were the same as those described by observers all over the world, and the clinical course of these fevers did not differ from the descriptions of the same fevers as given by such writers as Machiafava and Bignami of Italy, by Manson of England, and by Thayer of the United States. The estivo-autumnal malarial fever, while occurring generally, was more prevalent in certain commands. This type was especially common in the troops stationed in the Laguna de Bay District, and at the Deposito (Manila Water Resovoir). Tertian malarial fever occurred generally among the troops. It appeared to be the common type of Manila City.

Quartan malarial fever.— But 1 case was observed in a soldier, a private of "E" company, Forty-seventh Volunteer Infantry. This case was one of single quartan fever, and the typical quartan parasites were found in the blood, including the segmenting organisms. The fever was not severe, and was controlled quickly by quinine.

Concurrent or combined infections.— As mentioned before, malarial fever occurs very frequently in the course of other diseases, generally during the convalescent period of those diseases, occasionally in the prodromal stage or in the early stage of some acute disease.

Malarial fever and dysentery.— Out of the 157 cases of chronic and subacute dysentery in which blood examinations were made, the malarial parasites were found in 36, or in nearly 23%. The malarial parasites were found once in the course of an acute dysentery.

Malarial fevers and typhoid fever.— Out of the 125 cases of typhoid fever in which diagnosis of typhoid fever was confirmed by Widal's test, in 5 (or 4%) malarial parasites were found, in each case during convalescent period of typhoid fever.

Malarial fevers and other diseases.— Other diseases, in the course of which malarial fever also commonly occurred, were pulmonary tuberculosis and otitis media. The malarial fevers also frequently occured in surgical cases and in venereal cases.

The mosquito in its relation to malaria.— Unfortunately, before this subject could be studied, I was obliged to return to the United States. But little of my time could be devoted to this most important work. Practically all of it was taken with my duties at the First Reserve Hospital and on the Board of Health. Mosquitoes are very thick and extremely active in the Philippines. It is essential, for a night's rest, to sleep under the cover of a fine-meshed netting. In certain districts, as about the Laguna de Bay in Luzon, mosquitoes are very abundant. I have observed the anopheles in Manila, and at Multinlupa and Pasig on the Laguna de Bay in Luzon. They are extremely plentiful in these latter districts where the malarial fevers are also very common.

UNDETERMINED TROPICAL FEVERS.

There are many fevers occuring in the tropics which are obscure as to their origin. Attempt has been made by several investigators to classify them from a clinical basis, but this is far from satisfactory. This classification on symptoms is not scientific and does not assist to the rational application of hygienic and therapeutic measures. Very little has been done in the tropics in the line of systematic scientific examinations, and the recording of the same in connection with the clinical phenomena. Until systematic laboratory examinations have been conducted for some time, and careful clinical observations made, this class of fevers will remain obscure.

A beginning has already been made by the U. S. Army medical officers, constituting the board to investigate the diseases of the Philippines, and it is hoped that the same work will soon be extended all over the Islands. Every general hospital is equipped with a microscope and other necessary apparatus for the making of blood and other laboratory examinations. When the conditions in the Islands assume a peace basis, valuable work can be done toward the identification of many of these fevers. Some of these obscure fevers are of short duration, while others are of long duration, and the fever is more or less of the continued type. Some assume the relapsing type. The possibility of many of the fevers of long duration being Malta fever, has been noted above. This fever (Malta) appears to be spread widely in

tropical, sub-tropical and temperate zones. The fever described by Munson as "double continued fever," occurring in China, corresponds very closely with Malta fever.

"*Hepatic*" *fever.*— Many of the short fevers have been described as due to climate, to exposure, sun, etc., etc. There is a class of fevers distinct from this latter class which is accompanied, usually, by marked jaundice and acute enlargement of the liver. In these fevers there is pain over liver, and considerable gastroduodenal disturbance. This type of "hepatic fever" occurs most frequently in Europeans and Americans, generally in the first year of their stay in the tropics. These fevers vary in duration and intensity. They last from a few days, to weeks. In fatal cases the autopsy shows marked acute hyperplasia and hyperemia of liver. In 1 case (an American clerk in the quartermaster's department) there were multiple abscesses of the liver without any previous dysentery. This man had been in the Islands about a year. He had had several attacks of jaundice and "indigestion" before the fatal attack. He had a fever of a continued character, not influenced by quinine, for several weeks before death. Blood examinations were repeated frequently, and were always negative for the malarial parasites and for typhoid fever, and there was a persistent marked leucocytosis. Clinically there were marked jaundice, greatly enlarged painful liver, considerable gastroduodenal disturbances and no diarrhea. Autopsy showed greatly enlarged liver, weight 4,470 grammes, filled with many large and small abscesses. Examinations of abscess contents, which were bile stained, were negative for amebæ, and the large intestine showed no evidence of either recent or old dysentery. This case appeared to be one of acute hepatitis, which had gone on to abscess formation and apparently not dependant on a previous dysentery. There was an acute duodenitis, and the liver infection may have come through the bile ducts.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 18, p. 431.)

TETANUS.

Moschcowitz,[5] in a paper which he read at the meeting of the New York County Medical Society, April 23, 1900, summarizes his views as follows:

(1) All forms of tetanus are caused by the bacillus of Nicolaier; hence the diagnosis of rheumatic or idiopathic should have no room in our nosology.

(2) The tetanus toxins appear to have a distinct affinity for the anterior horns of the spinal cord, which may be distinctly recognized by Nissl's method of staining.

[5] Annals of Surgery, October, 1900, p. 575.

(3) The cerebrospinal fluid of tetanus patients is more toxic than the blood.

(4) The antitoxin therapy appears to have a distinct beneficial influence upon the course of tetanus.

(5) With the antitoxin treatment the mortality percentage has been reduced from about 90% to 40%.

(6) Although the use of the serum is a most important factor in the treatment of tetanus, the other recognized therapeutic measures should not be neglected.

TECHNIQUE AND RESULTS OF SUBARACHNOID; COCAINE ANESTHESIA.

Tuffier[6] has performed 63 operations on the perineum, rectum, abdomen, urogenital organs and inferior members, including vaginal hysterectomy, nephrectomy, excision of the rectum, etc., with anesthesia that was induced, exclusively, by a fresh, sterile, 2% solution of cocaine injected into the subarachnoid space at the fifth lumbar vertebra, on a line level with the margin of the iliac crests. In four to ten minutes the patient feels a prickling, tingling and numbness in the feet and legs, and then the operation can be commenced at once, as sensibility to pain and heat is abolished, although sensibility to contact is retained. The analgesia is complete, absolute, and may extend to the axillæ. In one case the patient lifted the stump after amputation of the thigh, to facilitate ligating the vessels. Another listened to the sawing of his femur, but remarked that he could not tell whether it was his leg or the leg of the table that was being sawed. Another, after her kidney had been removed, inquired when the operation was going to begin. Very few consent to be blindfolded. This analgesia lasts from sixty to ninety minutes. The position does not affect the sensibility. No serious accidents have occurred; there was merely a sensation of oppression in the epigastrium, a little nausea and vomiting, sometimes at the time of the injection, but usually not until after a few hours, then it is slight, and yields at once to the ingestion of ice. These accidents were noted 50 times in the 63 operations. Cephalgia was more frequent, but was merely a slight heaviness in the head in two-thirds of the cases. In a few it was more severe and kept the patient awake all night, lasting for forty-eight hours. Sweat, dilation of the pupils, tremor of the limbs and acceleration of the pulse were also occasionally noted; but all without the slightest gravity, vanishing within an hour. The temperature also rose in 15 cases, without operative complications; in 1° to 40° C., but returned to normal by the next day, and in 4 a chill for a few minutes was also noted. The patients were between twelve and sixty-nine years of age, and 39 were men. Tuffier uses a special platinum needle, straight, 9 centimetres long, the external diameter 11 millimetres, and the lumen 8 millimetres. It is strong, so that it will not break if it comes in contact

[6] Semaine Medical, May 10, 1900; Journal of the American Medical Association, June 9, 1900, p. 1483.

with the bone, and the tip is very short. The dose should not exceed .015 mg. of cocaine. The technique is much the same as for lumbar puncture. The needle is inserted about 1 centimetre from the median line of the spine, with the left forefinger on the apophysis as a guide. There is scarcely any resistance to the passage of the needle, and the issue of a few drops of cerebro-spinal fluid is the sign that the needle is in the right place. The patient should be warned that he is about to feel a prick and not to stir. Children and hysterics are liable to be afraid, and Tuffier rejects the method for them on this account. In case the anesthesia fails for any reason, the injection does not counter-indicate resorting to general anesthesia at once. He changed to ether several times in his early experience, noting merely in such cases that the usual period of agitation was diminished.

EUCAINE IN SPINAL ANESTHESIA.

Englemann,[7] of Bonn, reports his experience with eucaine bacilli. He states that after the injection of .01 through a lumbar puncture very unpleasant after-effects were observed, without more than a slight para-esthesia resulting. That one-half hour after the injection, sacral pain appeared, which gradually became quite severe. Also nausea, vomiting, chill, fever to almost 30° C., headache, diminution and irregularity of the pulse, dyspnœa, and precordial distress. After a dose of morphia the symptoms disappeared with an attack of sweating, except the violent sacral and head pain, which lasted for several days and forced him to remain in bed. The injection was a personal experiment, and the writer advises against further experiments with eucaine bacilli.

SPINAL ANESTHESIA.

A. Bier[8] has contributed some observations of this method, including some personal ones. He has noted that unpleasant symptoms (vomiting, headache, weakness, vertigo) of even day's duration after the injection of very small doses of cocaine into the subdural space. He states that collapse, sensations of oppression, chills, fever and even 1 death, have occurred in the experience of other surgeons, especially the French. He advises against the method as at present used, and especially against the use of doses exceeding 15 mgs.

MEDIAN OSTEOTOMY OF THE HYOID BONE AS A METHOD OF PERFORMING PHARYNGOTOMY.

Valls[9] proposes this new operation in order to overcome some of the dangers and difficulties that surround the removal of malignant or benign growths from the pharynx or the base of the tongue, and that are met with in the complete removal of the tongue.

The method of operating is as follows: An incision in the median line is carried from the mental symphysis to the thyroid cartilage. The skin and subcutaneous tissue can be incised at one cut. The bleeding is insignificant. The next step is the denudation of the hyoid bone in the median line. The superficial cervical aponeurosis is incised, the myohyoid muscle is raised in the median line by using the grooved director, so that its upper border can be severed from the hyoid bone in the median line. Here an arteriole or two may be met. The hyoid bone is then resected in the median line with the bone forceps; the two parts of the myohyoid can then be gradually separated with it, thus providing an opening about an inch and a half wide.

Two ways are open to the surgeon: Below is the thyrohyoid membrane; above the mucous membrane alone separates him from the pharynx. The closure of this wound is very simple after the operation has been completed. It is not necessary to attempt an osseous suture. The result is functionally as good if the muscle and fibrous tissues are sutured. The result in fibrous union is just as efficient from the functional standpoint.

A preliminary tracheotomy has not been found essential to successful operating when this incision is employed, except where the operation involves the larynx directly.

The superior route is to be employed in total removal of the tongue or removal of tumors from its base, while the other route is best for attacking tumors of the pharynx, especially of the epiglottis, and foreign bodies.

The author formulates the following conclusions:

(1) The median osteotomy of the hyoid bone is a simple, easy operation and essentially benign.

(2) It permits the penetration into the pharynx and gives a better view and operative field than does Malgaigne's superhyoid operation. Foreign bodies, enucleable tumors, cancers limited to the epiglottis, and especially grave syphilitic lesions, are its indications.

(3) It facilitates the removal of intramuscular tumors at the base of the tongue, lipomas and hyoid cysts which are difficult to remove by the lateral route.

(4) It facilitates the total amputation of the tongue in cases where the cancer is situated in the base. The amputation is complete, and is less dangerous by this method.

(5) There are no remote sequelæ from the osteotomy. It leaves no deformity behind it or functional disability.

RADICAL OPERATION FOR DIVERTICULA OF THE ESOPHAGUS.

Dr. F. Veiel[10] (Tübingen) reports and analyzes 22 cases of radical cure of this unusual lesion. The symptoms, as illustrated by a case, were a smacking noise during deglutition, progressive interference with deglutition. A bulging at the anterior border of the sterno mastoid muscle during rapid drinking. Eructation of food or liquids after violent coughing or on bending forward. The but-

[7] Münch. med. Woch., 1900, No. 44.
[8] Münch. med. Woch., 1900, No. 36.
[9] Rev. de Chir., May 10, 1900; American Journal of the Medical Sciences, September, 1900.
[10] Beitr. zur klin. Chir., Bd. xxvii Schluss, H. 3.

ton of an esophageal sound passed into the pouch can be felt in the neck.

The diverticulum is exposed by an incision as for esophagotomy at the site of the swelling. It is isolated, ligated and excised. The wound is generally drained, sometimes not. Food by mouth on the fifth day.

Kocher advocates a transverse incision, but the vertical one is generally used. Failure appears to be due to lack of care in suturing the esophagus wound and in feeding by mouth too early. There were 5 deaths in 22 cases.

Invagination of the sac has been done with good results.

THE SURGICAL TREATMENT OF PULMONARY GANGRENE.

Em. Herczel, of Budapest, in an interesting article gives a good résumé of the technique of pneumotomie. He avoids exploratory puncture, which he considers liable to infect the pleural cavity in case the parietal and visceral pleuræ have not become adherent, liable to infect healthy lung tissue when the needle is withdrawn, and liable to cause severe hemorrhage from puncture of large vessels. He does not practise it unless to be followed by pneumotomie, in which case the needle is used as a guide to the cavity to be opened.

The resection of the ribs should be free. He claims that the more extensively the lung is exposed the easier does the examination in manipulation of the lung become, and the more rapid will the cavity close and heal. One to two ribs are removed in the usual manner. Should three to four ribs be resected a flap incision of the superjacent soft parts is the most satisfactory method.

After the resection, if the pleural surfaces are adherent, the operation becomes easier and safer. The retraction of the intercostal space on deep inspiration, and the slight descent of the lower lung border noted before the operation, the writer thinks, would indicate this. Sometimes after the resection of the ribs, the lung can be seen to slide up and down during respiration, as the intestine is seen through the unopened peritoneum. When adherent, the parietal pleura appears, grayish yellow spotted with fat, thickened and dense to touch. Finally, a fine needle pushed into the lung remains stationary if the lung is adherent, and consequently fixed to the chest wall. A free lung would cause it to oscillate. The "Shapiciko" and "Tuffier" methods are also here mentioned.

The attempts to produce this adhesion of the pleural surfaces by ignipuncture, electrolysis, cauterization, chloride of zinc and other methods have now been abandoned in favor of immediate union by suture. This, it is claimed, can be easily done by experienced operators, especially when the surface of the lung is exposed, and if it is forced into the wound by inspiration or coughing. The lung once fastened to the edges of the wound, its collapse or pneumothorax is avoided. The operation can now also be quickly finished.

As regards the pneumotomie in indurated infiltrated, anemic tissues, when the blood circulation is impeded, the lung can be satisfactorily opened with the scalpel, but since eventually the operator meets soft, healthy tissue and is dealing with foul gangrenous tissue in order to limit infection, the use of the Paquelin cautery is to be preferred.

The writer considers that an anesthetic is hardly necessary. He would not use ether. In an operation recorded, chloroform was used.

In regard to the results of operative treatment, Herczel claims to show that in 91 cases there was recovery in 60 or 61%.

RESECTION OF GASTRIC CARCINOMA.

An improvement in the technique of this operation has been devised by W. G. MacDonald,[11] by which the time required for the operation is shortened, and the difficulties of pyloric resection diminished. For full details a perusal of the original article is recommended. The procedure, in brief, consists of a resection of the stomach proximally, and below the pylorus to the extent indicated by the disease. The resected stomach is sutured. The resected duodenum is sutured. A lateral anastomosis is made between the duodenum low down and the jejunum to allow the bile to flow into the latter. A lateral anastomosis is also made between the stomach and the loop of the jejunum formed by the duodeno-jejunal anastomosis. This avoids a discharge of bile into the stomach.

PERFORATING DUODENAL ULCERS.

Weir,[12] says of this affection that it is much more rare than the ulcer of the stomach; is much more difficult to diagnosticate properly, and is more apt to be confounded with other more distant surgical lesions, such as appendicitis, etc.

The following contrasting symptoms have been grouped as an aid to this differential diagnosis:

Gastric ulcer. — (1) More frequent in women — twenty-fifth to fiftieth year; (2) pain promptly after eating; (3) pains relieved by vomiting; (4) frequent biliary, mucous and food vomiting; (5) marked dyspeptic symptoms; (6) frequent bloody vomiting; (7) more seldom bloody stools.

Duodenal ulcer. — (1) Occurs more frequently in males; (2) pain in right hypochondrium or to the right of the parasternal line; (3) comes on one or two hours after meals; (4) no relief by vomiting, latter not frequent; (5) bloody stools (melena or bright blood) more common than bloody vomiting; (6) jaundice, if present, would contribute to the diagnosis.

The usual symptoms of perforation are the following: Great pain is usually felt at the epigastrium or to the right of this region, as was noted 26 times in the author's 47 cases. It has a few times been observed at the umbilicus and in the left side; but in 23 others of the 47 instances it was simply recorded as abdominal pain. Vomiting often follows the attack of pain. It occurred

[11] Annals of Surgery, vol. xxxiii, p. 157, 1901.
[12] Medical Record, May 5, 1900; American Journal of the Medical Sciences, August, 1900.

in 28 out of the 34 instances. Shock is not often met with, but may be severe and fatal. Peritoneal symptoms rapidly develop, with a tendency in some cases to be localized in the upper part of the abdominal cavity and in the right side; when these signs show themselves mostly to the right and at or below the level of the umbilicus, an appendicitis is necessarily simulated. When the liver dulness has disappeared nearly up to the mammary line, air extravasation may be suspected, and when it is present it will aid in establishing a diagnosis. This symptom of loss of liver resonance, unless marked, is so often found to be due to a distended colon, that it should not be much relied on.

In considering the diagnosis of perforated duodenal ulcer as just given, the author feels that more weight and attention should be given, (1) to the previous history, which shows, contrary to the opinions of many anterior observers, that in the 51 collected cases of operation for the relief of such conditions, there was a history of gastric or dyspeptic symptoms given in 25 out of the 34 instances in which this point was noted; (2) the fact that the initial or early pain was developed in 26 instances out of 47 in the epigastrium is also important; and in the right hypochondrium 13 times. The third actor of value in the diagnosis as well as the treatment of the symptoms of perforation peritonitis, whether from stomach, duodenum, gall bladder, appendix or any other part of the intestinal tract, is the prompt resort to an exploratory incision. This need of an early determination of the site of the perforation has been shown frequently. The mortality in these cases clearly depended on whether the patient underwent surgical intervention within twenty-four hours from the inception of the perforation.

The results in the 51 cases reported bear out this conclusion. There were 25 cases in which the lesion was recognized and closed at the time of operation; of these 13 underwent operation after thirty hours' delay, and all resulted fatally; 12 other patients were operated on within that time, and 8 survived, giving thus only 33⅓% of mortality. The mortality was formerly 60%. Thus there has been great improvement in the past five years. Before that time, in 70% of the cases operated on for duodenal ulcer, it was not found; it was found and sutured in 25%. In only 2 cases, or 10% was the possibility of a duodenal perforation considered. Contrast this with the 31 cases operated on since 1895, when the analogous surgery of gastric ulcer began to develop. Of these 31 cases the perforation was not found in only 11%. It was found and sutured in 26 cases, or 65%. Its presence was considered in diagnosis in 11 cases, or 35%.

(To be continued.)

A DIMINUTIVE MOTHER.—Mrs. John Petty, who recently died at Yaphank, Long Island, N. Y., at the age of thirty-seven, was the mother of twelve children, although only two and one-half feet in height.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting Wednesday, February 20, 1901, DR. V. Y. BOWDITCH in the chair.

DR. C. F. WITHINGTON read a paper entitled

EXPERIENCE WITH THE WIDAL REACTION IN TYPHOID FEVER.[1]

DR. GEO. B. SHATTUCK presented a paper on

THE WIDAL REACTION IN TYPHOID FEVER.[2]

DR. MASON: I am impressed every week with the value of this test, certainly in hospital practice. I have here two charts which Dr. Thayer has prepared, showing the same fact that Dr. Withington and Dr. Shattuck have dwelt upon, that in exceptional cases a great number of tests fail to show the reaction. In one recent case many tests were made with no positive result, and the symptoms, which are marked on the chart, correspond with those of typhoid, as did the appearance of the patient and the course of the disease. I think one of these cases was mentioned by Dr. Withington, a patient who had venous thrombosis, but the other one is quite recent and not included in his series. Absence of rose spots, I see, is noted in both these cases, but rose spots may escape notice, as in a good many cases they are few in number, and such a negative statement is of no great importance in regard to the diagnosis. In one instance I remember a patient who went through a long typhoid and had no Widal reaction during the primary attack, but during a relapse the reaction was present. Perhaps that may be not uncommon, but I did not observe whether Dr. Withington mentioned it, whether the Widal test may be positive during relapse in any considerable number of cases in which it has not appeared in the primary attack.

DR. J. L. MORSE: A few months ago I had to look up the serum reaction in infancy, and at that time found out a few points which to me, at any rate, were rather new. In the first place, the serum reaction evidently occurs in infantile as in adult typhoid and under the same conditions. There seems to be no data with regard to the serum reaction in fetal typhoid, because if the child is born without the reaction it is not certain that it has not had typhoid; on the other hand, if the child is born dead with the reaction it is impossible to tell whether the reaction is the result of typhoid in the fetus or has been transmitted from the mother. In children born alive and well of women with typhoid or convalescent from typhoid the serum reaction may or may not be present. If the serum reaction is present it is probably due to transmission from the mother through the placenta and not to fetal typhoid, because as far as

[1] See page 442 of the Journal.
[2] See page 443 of the Journal.

we know typhoid in fetal life is always fatal. The strength of the serum reaction in the infant is always less than that in the mother. This weakness is probably due to its transmission through the placenta, the placenta acting as a filter. The transmission of the agglutinating power apparently depends on two factors: the strength of the agglutinating power in the maternal blood and the length of exposure. This has been determined by experiments on animals. Nursing mothers with typhoid at times present the serum reaction in the milk, at other times they do not. The strength of the serum reaction in the milk is always less than that in the maternal blood, and that in the child's blood is always less than that in the milk. It has been found that this serum reaction may appear within twenty-four hours after beginning to take the milk, and never lasted more than a week after ceasing to take the milk. If the child takes the milk again it reappears in twenty-four hours or so. The reason that the strength of the reaction in the milk is less than that in the mother's blood is due, (1) to the resistance met in traversing the mammary gland and (2) to some unknown condition of the child's digestive tract.

Dr. Mason: In the absence of this test sometimes the diazo urinary reaction is of value. Although not a positive test of typhoid, it is confirmatory.

Dr. Withington: In some of the cases of jaundice without apparent typhoid, it is possible that the patient has had typhoid fever and an infection of the gall bladder with the typhoid bacillus which is a recognized fact in typhoid fever, and, unless there was positive evidence from the autopsy that the patient did not have typhoid fever, it would be certainly a possible supposition to make that the individual might have had typhoid fever with gall bladder infection which produced the jaundice, and, so far as the clinical history was concerned, produced nothing else but the jaundice.

Dr. Charles Harrington read a paper entitled:

SOME REPORTED CASES OF TYPHOID FEVER ATTRIBUTED TO CONTAMINATED OYSTERS, WITH CERTAIN FACTS CONCERNING THIS MEANS OF INFECTION.[3]

Dr. Barnes: I was very glad to listen to the paper of Dr. Harrington, because last year or the year before, a paper was read before the American Public Health Association by a gentleman from Baltimore, rather discrediting the possibility of contaminating oysters by sewage of that city, and after I read the paper, I received a report of the sewage commission of Baltimore, recommending the discharge of Baltimore sewage into the Chesapeake. The question was debated as to the possibility of contaminating the oyster beds, the contention being that the proposed point of sewage discharge was too remote to cause any injury to the beds. As a matter of precaution, however, a law prohibiting the taking of oysters within a radius of 4 miles of the out-fall was suggested. With an enormous volume of sewage and a very slight tidal flow, it seems to me doubtful if the proposed law would insure the safety of the plan proposed, and that the largest source of oyster supply of the United States may be very seriously injured from suspicion merely of the origin of a case of typhoid. It is therefore to be hoped Dr. Harrington's paper may be brought to the notice of citizens of Baltimore. In the report there was an alternate plan for the soil treatment of the sewage of the city, which, from European experience and the success which has attended this method of disposal in sixteen cities and towns of Massachusetts, ample assurance is given of freedom from objectionable features when this treatment is employed.

Dr. Mason: I have been very much interested in Dr. Harrington's paper, and am somewhat familiar with the literature of the subject through the Connecticut Board of Health and the Local Government Reports. This has become a practical question, both to the oyster dealer and to the general public. I must confess that I have not yet reached the point where I can advise persons who ask me with regard to it to abstain from the use of raw oysters. I do not believe there is so much danger as the public may infer from a few isolated epidemics; therefore, in my opinion physicians should be somewhat cautious in adding to any nervousness that may already exist. The raw oyster has almost disappeared from the dinner table. A lady said to me the other day that she had eaten oysters three weeks before, and wanted to know if she was out of danger. I told her I thought the time was up.

Dr. E. N. Whittier read a paper entitled

MEANS OF INFECTION IN TYPHOID FEVER.[4]

Dr. Richardson: It might be interesting for me to say a few words about the possibilities of the Marion contamination. The beach where the suspected oysters lay is on the western side of a small area of water partly enclosed by two wharves, one of which is my own. The tide has free access to this little bay, which is not more than a hundred yards in diameter. On the other side of my wharf is a sandy beach where I kept oysters all through the month of September. My family used these oysters at nearly every meal during the month of September, and no one suffered in consequence. I have little doubt, however, that all the water in that part of Marion was sufficiently contaminated with sewage to make the oysters dangerous as an article of food.

Dr. Calvin G. Page read a paper on

EARLY DIAGNOSIS OF TYPHOID FEVER BY ISOLATION OF BACILLUS TYPHOSIS FROM STOOLS; CONCLUSIONS OF DR. L. REMY, BASED ON THE USE OF HIS ASPARAGIN–LACTOSE–CARBOL GELATINE.[5]

[3] See page 439 of the Journal.

[4] See page 444 of the Journal.

[5] See page 445 of the Journal.

Recent Literature.

Physical Diagnosis in Obstetrics. A Guide in Antepartum, Partum and Postpartum Examination for the Use of Physicians and Undergraduates. By EDWARD A. AYERS, M.D. Professor of Obstetrics in the New York Polyclinic; Attending Physician to the Mothers' and Babies' Hospital. Pages 283, and 67 illustrations. New York: E. B. Treat & Co. 1901.

The author of this book is the editor of the monthly journal *Obstetrics*, and the volume is a reprint of a series of continued essays published in *Obstetrics*. The writer has constructed a book which will be of much use in the careful study of clinical obstetrics, especially on the subjects of diagnosis, to the advanced student desirous of further knowledge in the subject, to the practitioner anxious to keep abreast of the subject and also to the teacher of clinical obstetrics as a guide in his own work. For the average undergraduate with a limited amount of time and clinical material at his disposal, we believe the book will be of little value, while the man, who at graduation knows the whole subject of obstetrics, will have no use for such a book as this.

The author discusses with considerable detail the various points in diagnosis of the maternal and fetal conditions before, during and after labor, taking up practically every point in the maternal history, the various methods of examination and the conditions in the different stages of labor which may in the case have a bearing upon diagnosis, prophylaxis or labor management. As a basis for the text an elaborate history chart of several pages has been inserted, and the text following is largely an elaboration of the various points in the chart. Almost nothing in the way of treatment is attempted in the book except in a suggestive way. Charts of this nature are undoubtedly too elaborate for the busy general practitioner but if given to the student in perhaps a modified form would be of great value in training his observing powers and in calling his attention to points which are often overlooked.

The book is a contribution of value to obstetrical literature, more from a teaching than a practical standpoint.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By CHAS. HARRINGTON, M.D., Assistant Professor of Hygiene in the Medical School of Harvard University. Twelve plates and 105 engravings. Philadelphia and New York: Lea Brothers & Co. 1901.

The author, in his preface, states his object "to provide a students' textbook, which should cover the most important topics included in the wide domain of hygiene, and be useful in the laboratory and as a reference book for practitioners and health officers."

In the first half of the work the author follows quite closely the method of the earlier English writers upon the same subject, treating of food, air, soil and water.

In the opening chapter upon food, the author treats of the subject from the standpoint of many years of experience as a food chemist, both for the State Board of Health and for the city of Boston. His clear and positive manner makes this chapter one of special value to the student and practitioner. It is well illustrated with cuts, and a series of plates showing the starches most commonly employed in food adulteration.

The topics presented in the latter portion of the work are habitations and schools. The portion relating to plumbing is especially full and clearly illustrated. Disposal of sewage and garbage, disinfectants, quarantine, military hygiene, naval and marine hygiene, tropical hygiene, hygiene of occupations, vital statistics, personal hygiene, vaccination and disposal of the dead are also discussed. The author has presented the latest and most modern information upon each subject treated.

We would suggest, however, that in a second edition, the author may present a chapter upon the all-important, in fact, to the practical hygienist, the most important of all questions, the management and control of infectious diseases. The subject is of sufficient value to warrant separate treatment in a chapter by itself, since it comprises fully half of the duties of all officials who have to do with sanitary questions.

Studies in Human and Comparative Pathology. By WOODS HUTCHINSON, A.M., M.D., Professor of Comparative Pathology and Embryology in the University of Buffalo; formerly Professor of Anatomy in the State University of Iowa, U. S. A., and Lecturer on Diseases of Animals in the Medical Graduates' College and Polyclinic, London. Edited by DR. EDWARD BLAKE. London: Henry J. Glaisher. 1901.

This book is essentially a collection of short essays on a great variety of topics connected with the subject of the "Nature of Disease," on which the author brings to bear a good knowledge of zoölogy, embryology and comparative pathology. It contains much information that will be of interest to medical men. It is written in a most pleasing and attractive style, and it shows the author to be a careful thinker and observer. The work deserves a wide circle of readers.

Medico-Surgical Aspect of the Spanish-American War. By LIEUT.-COLONEL DR. NICHOLAS SEHN, Chief Surgeon U. S. Volunteers, etc. Chicago: American Medical Association Press. 1900.

This book is a combination of the "magazine" article of today, and a report of the author's observations and experiences in the late Spanish-American War.

It is like a nut with some "meat," but with an awful thick shell.

THE BOSTON

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THE PREVENTIVE TREATMENT OF RABIES.

Statistics are gradually accumulating in sufficient numbers to be of decided value in the final determination of the important question of the possibility of preventing hydrophobia. The disease is not a great menace to man, and no doubt continually increasing vigilance will more and more prevent the inoculation of human beings by rabid animals. The possibility, however, will always remain of the sporadic appearance of the disease, and continued studies as to its prevention and pathology are very much to be desired. A publication from the recently organized department for the Preventive Treatment of Rabies, at the College of Physicians and Surgeons of Baltimore is of very considerable interest in this connection. Judging from the experience at this institution there is small cause for pessimism regarding the result of the Pasteur treatment if properly applied at a sufficiently early period after the original inoculation:

The report before us gives the outcome of the treatment of 209 cases, ranging in age from two to eighty-two years: The wounds were inflicted by dogs in 188 cases, in 13 cases by cats, in 1 by a calf, in 1 by a pet pig. In 6 cases the wounds were not the results of bites. One hundred and forty-seven persons came to receive the treatment during the first week after having been bitten, 27 the second week, 11 the third week, 7 the fourth week, 11 the fifth week, 4 the sixth week and 2 the eighth week. In 3 cases the treatment was discontinued, because the animal, held under observation, was evidently not rabid. Four persons abandoned treatment. One patient six months pregnant was treated without untoward result. There were 5 abscesses in 6,270 injections. There has been but 1 death from any cause. This death was caused by rabies. The history of this case, in brief, was as follows: A lad eight years old, bitten February 2, 1900, was admitted February 4th. He received only one treatment, consisting of two hypodermic injections. He was removed from the institution and treatment discontinued on February 5th against the advice of the physicians. After the inoculated rabbits and a cow bitten by the same dog developed rabies, the child was brought back on February 25th. He developed rabies March 14th and died March 17th. As the report says, a case of this character cannot be attributed to failure of the treatment, but to delay in resorting to treatment.

These are certainly most strikingly favorable results, and seem to point the lesson too often ignored, that promptness in submitting to treatment and faithfulness in carrying it out are of the utmost importance. It is altogether probable that the various failures from time to time reported are due rather to the negligence of the patients than to the suggested inefficiency of the treatment.

An added scientific interest has been given the whole subject of rabies both in man and animals by recent pathological investigations at the hands of Babes, Nélis, Ravenel, McCarthy and others, who have shown, with certain variations in detail, that constant changes occur in the central nervous system of animals in which hydrophobia has run its course. These changes are particularly observable in the dorsal root ganglia of the cord, consisting essentially in a proliferation of fixed cells and a coincident destruction of the nerve cells. Whether this alteration is absolutely peculiar to hydrophobia may, perhaps, be questioned; nevertheless, the finding is so constant that it may very materially aid in the more rapid determination of the diagnosis, than is possible by the inoculation method, and thereby permit an earlier rational treatment of the disease in persons secondarily affected.

In general the work, both on the side of pathological anatomy and of prophylaxis, is progressing most favorably. It is not too much to hope that this much dreaded, if somewhat infrequent disease, may finally be brought under complete control.

THE PREVALENCE OF SMALLPOX.

The past winter has seen an unusual prevalence of smallpox throughout the United States, often occurring sporadically, but at times reaching mild epidemic form. Various reasons may be sought for this state of affairs. No doubt one of the most conspicuous is the general carelessness of the public regarding vaccination. Unless people are frightened by the actual presence of the disease in virulent form, they are exceedingly likely to evade the regulations of boards of health, particularly in those regions where the anti-vaccination fanaticism is rife. Another very great menace to this country is the importation of the disease

from foreign countries. For example, at the port of New York the resources of the quarantine department are at the present time being taxed to the utmost, owing to the unusually large immigration from Italy. Almost every steamer arriving from Naples has brought one or more cases of the disease, and the quarantine station on Hoffman Island has many hundred detained passengers, awaiting the examination of physicians. This constant menace to a city like New York, and secondarily to the country at large, is naturally very great, and it is little to be wondered at that cases occasionally escape the vigilance of the authorities.

In the South, again, the negroes are a prolific cause of the spread of the disease, owing to their avoidance of vaccination and their disregard for the disease itself. It is said that most of the cases which have occurred in Washington have come from the South.

An interesting report comes from Tennessee, quoted from a Nashville paper, showing how much may be done by vigorous measures on the part of the appointed authorities:

From February 13, 1899 to October 1, 1899, there was a total of 1,014 cases of smallpox in Tennessee, of which only 11 proved fatal. From October 1, 1899, to March 5, 1900, there occurred 3,004 cases, with only 46 deaths. From March 5, 1900, to October 1, 1900, 1,389 cases occurred, with 18 deaths. From October 1, 1900, to April 1, 1901, there were 4,207 cases, with 98 deaths. On April 1, 1901, there were 491 cases in the State, 49 counties being infected. At present the disease is to be found in only 28 counties—which shows that 21 counties have been freed from the disease during the past eighteen days. According to these figures, which are official, there have been 10,105 cases of smallpox in Tennessee during the past two years and two months, and 173 deaths as a result of the disease. This is a death rate of only about 1.7 per hundred. It shows the disease to be of the mildest type.

The fact that many cases have been of the mildest type has naturally conduced to a certain sense of security, and hence, no doubt, to greater carelessness in guarding against the disease. This is unfortunate, in so far as it leads to laxness in the enforcement of vaccination, and is, no doubt, one cause of the unusually wide dissemination of the disease. Although sporadic cases may always occur, smallpox, like typhoid fever, must be regarded as a preventable disease, and vigilance should never, for a moment, be relaxed. It is a reasonable expectation that smallpox may, in time, be eradicated, but such a consummation clearly cannot be reached until the people work in complete accord with the health officers, and cease to evade and antagonize the regulations provided for their good.

A CENTENARIAN. — It is reported that Mrs. Rebecca Packard, one hundred and five years old, has died in Covington, Pa.

MEDICAL NOTES.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION. — The following officers were elected at the sixth annual meeting of the Western Ophthalmologic and Oto-Laryngologic Association held in Cincinnati, April 11th and 12th: Dr. C. R. Holmes, Cincinnati, O., President; Dr. W. L. Dayton, Lincoln, Neb., First Vice President; Dr. O. J. Stein, 100 State Street, Chicago, Treasurer; Dr. William L. Ballenger, 100 State Street, Chicago, Secretary. The next meeting will be held in Chicago, April 10, 11 and 12, 1902.

OFFICERS OF ASSOCIATION OF AMERICAN PHYSICIANS. — The following officers of the association were elected May 2, 1901, for the ensuing year: President, James C. Wilson; Vice President, James Stewart; Recorder, S. Solis Cohen; Secretary, Henry Hun; Treasurer, J. Crozier Griffiths; Councillors, Frank Billings, Francis P. Kinnicutt; Representative on Executive Committee of Congress, William Osler; Alternate Representative, Francis H. Williams.

PLAGUE NEAR CONSTANTINOPLE. — A case, officially pronounced to be plague, has occurred in one of the suburbs of Constantinople.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 8, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 74, scarlatina 23, measles 107, typhoid fever 4.

OPPOSITION TO VACCINATION AT HAMPTON, N. H. — A recent order from the State Board of Health, directing the school board to have all children vaccinated, who had not been vaccinated, or who had not had smallpox, has met with considerable opposition. The order is regarded as arbitrary and unnecessary.

TYPHOID FEVER AT NEW HAVEN, CONN. — During the month of April, 37 deaths from typhoid fever occurred in New Haven. Many patients are still critically ill.

NEW YORK.

OPENING OF NEW YORK HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN. — The New York State Hospital for the Care of Crippled and Deformed Children, at Tarrytown, will be formally opened Friday, May 17, 1901. The Right Reverend Henry C. Potter; D.D., president of the hospital, will preside. Short addresses will be made by Professor Robert F. Weir, M.D., of Columbia University, Professor A. Alexander Smith, M.D., of the University of the City of New York, and Professor William M. Polk, M.D., of Cornell University. Tickets for a special train

from New York to Tarrytown may be had upon application to Dr. Newton M. Shaffer, 28 East 38th Street, New York.

Closing of Pathological Institute of the New York State Hospitals. — The work of the Pathological Institute of the New York State Hospitals has come to an untimely end. As a result of action by the legislature, removing Director Ira Van Gieson and depriving the Institute of quarters and funds for maintenance, the entire medical staff has resigned. Dr. Van Gieson, it is stated, has applied to the Supreme Court for an injunction restraining the State Commission in Lunacy from interfering with specimens and other property of the Institute.

Edward N. Gibbs Memorial Prize Fund. — The trustees of the New York Academy of Medicine announce the receipt of $10,000 from Mrs. Sarah Barker Gibbs and Miss George Barker Gibbs, for the establishment of the Edward N. Gibbs Memorial Prize Fund, the income to be awarded, triennially, to the physician, of regular standing in the medical profession of the United States of America, who shall present the best original essay upon the etiology pathology and treatment of the diseases of the kidney.

A Family of Simulators.—The champion family of frauds has been discovered. A boy of thirteen, who feigned blindness, was found on the streets appealing for charity, and when a detective visited the home of his parents, which was a very comfortable one, the mother was seized with such a terrible fit of coughing (got up for the occasion) that she could not answer any questions, while his step-father showed a frightful-looking "cancer" of the leg which proved to be ingeniously constructed of painted putty.

Bequests to Hospitals. — By the will of Joel Goldenberg, a wealthy merchant, the greater part of his estate, believed to exceed $1,000,000, is left to the Mount Sinai Hospital. There are specific bequests of from $1,000 to $5,000 to fourteen charitable institutions, among which is included the Montefiore Hospital for Chronic Diseases, and, in addition, the Training School for Nurses of Mount Sinai Hospital receives $5,000.

Miscellany.

RECEPTION HOSPITALS FOR THE INSANE.

In the eighth annual report of the State Charities Aid Association to the State Commission in Lunacy, just issued, the recommendation is made that small reception hospitals be established in New York and other cities. There are now more than 22,000 dependent insane patients in the State, and statistics show that the yearly increase of the insane is out of proportion to the increase in population. It is believed that many of the now hopeless cases might be saved if the patients could have the benefit of the best medical skill, such as is now given gratuitously by the most distinguished members of the profession to those suffering from other forms of disease in the general hospitals of every city in the State. It is suggested that the proposed psycopathic hospitals should be made branches of the existing State institutions and be governed by the same managing boards. "Into the Reception Hospitals for New York City," the report goes on to say, "(a branch of the Manhattan State Hospital and taking the place of the wards for the insane at Bellevue), would be gathered all recent cases of the committed insane; and here they should be examined and classified by the attending physicians before being treated either within the wards of the hospital or elsewhere. Cases possibly curable would doubtless be kept for a limited period in the reception hospital under the daily care and constant advice of the most eminent members of the profession, until it was thought best to send them on to the main hospital. The hospital should receive not only the destitute, but those able to pay for themselves, that all may receive the benefit of the best neurological and alienist skill that New York City can provide. It is also desirable that the reception hospital should open its doors for clinical teaching. It is under the roof of the New York reception hospital that the already established pathological institute would naturally find its home."

Obituary.

ROBERT WILLARD GREENLEAF, M.D.

Dr. Robert Willard Greenleaf, of Boston, died suddenly April 28, 1901, at the age of forty-six. He was born in Charlestown and had always lived within sight of the State House. He graduated from Harvard in 1877 and became an assistant in botany under Prof. G. L. Goodale. He entered the Harvard Medical School in the fall of 1881, receiving the degree of doctor of medicine in 1885. He joined the Massachusetts Medical Society in 1884, while serving a term as house officer at the Boston City Hospital. He was an assistant in the office of the superintendent of the hospital for a short time after his term of service as house officer ended, and then entered upon the practice of medicine, with an office at 561 Boylston St., Boston, where he lived the rest of his life. Soon after he became an instructor in histology at the Harvard Medical School. He taught botany in many of the private schools and lectured upon that subject to the graduates of the Boston Normal School. He was also professor of materia medica and botany at the Massachusetts College of Pharmacy, a position he held at the time of his death. He was an examiner of the Penn Mutual Life Insurance Company.

He was appointed a district physician of the Boston Dispensary and served for several years, resigning to accept a position as physician. In 1900 he was elected president of the staff. He was the author of the Centennial Report of the Dispensary, a valuable and interesting paper. He had a large private practice, but was not prevented, thereby, from giving freely of his time and experience to the poor and needy.

Dr. Greenleaf was an energetic, conscientious, able physician, generous to every one except himself, affable, tactful, sympathetic. By his death the medical profession, and, indeed, the whole community, has suffered a great loss.

RESOLUTIONS ON THE DEATH OF ROBERT WILLARD GREENLEAF, M.D.

At a special meeting of the staff of the Boston Dispensary, held April 30, 1901, the following resolutions were adopted, and it was voted to send a copy of them to the *Boston Medical and Surgical Journal*.

Dr. Robert Willard Greenleaf, our friend and co-worker, died suddenly, Sunday, April 28th.

We, the members of the staff of the Boston Dispensary, desire to place on record our appreciation of him as a man and physician.

We testify to his loyalty to his friends, his devotion to his profession, and the loving tenderness and watchful care for his patients.

His earnest endeavors in behalf of this institution will be an incentive for more active work on our part.

Our profession has lost an able member, and we a loyal and true friend.

We extend to his mother and sisters our deepest sympathy.

WARREN F. GRAY,
Secretary of the Staff.

At a special meeting of the executive committee of the Boston Polyclinic the following action was taken:

It is with deep regret that the executive committee of the Boston Polyclinic meets to express its sorrow over the loss of our fellow-worker, Dr. Robert W. Greenleaf.

No young man has worked harder to broaden the field of education or shown more marked devotion to every duty — always willing to give his time and skill for the alleviation of poverty and suffering wherever found.

We wish to express to his family our appreciation of him as a man — respected by associates and most beloved by patients.

It was voted that a copy of the above be sent to his family and printed in the *Boston Medical and Surgical Journal*.

Correspondence.

THE CHARLES RIVER BASIN.

BOSTON, April 27, 1901.

MR. EDITOR: — The insanitary condition of the Charles River basin, below the Watertown dam, must be admitted. Extensive areas of foul-looking and vile-smelling flats, rapidly increasing, are uncovered at low tide in the river, and, although it would be difficult to prove this condition to be a cause of sickness or of any specific disease, it may be affirmed, without fear of contradiction, it constitutes a nuisance at times, under favorable conditions of wind, tide and temperature, which demands early abatement.

The minor causes contributing to the offences are three:

(1) The common practice of dumping into the river, during the winter and spring, street detritus, including horse dung, under the permit annually granted by the Harbor and Land Commissioners for this disposition of snow and ice. During the past five years the writer has observed, time and time again, load after load of this material containing scarcely a vestige of either snow or ice, thus disposed of by the Street Department of the city of Boston.

(2) The dumping of ashes close to the sea wall back of Beacon Street. For about two years this has been a common practice, resulting in washing into the river with every flood tide a quantity of this material.

(3) The houses on the north side of Beacon Street, for about a mile, have no other means for the disposal of sewage than to discharge it into the river. The total volume for ten months of the year, assuming there are 200 houses, 7 persons to a house, and 75 gallons of sewage per capita per day, would be 31,500,000 gallons. For these three minor causes of present condition the remedy is obvious, and should be applied irrespective of the question of damming the Charles.

The major cause of the offence, amounting to many times all others combined, is the storm overflow of the South Metropolitan Sewerage System, which now occurs practically with every thaw or fall of rain. The magnitude of this source of pollution may to some degree be appreciated by briefly outlining the plan of the intercepting system of Boston, built for and by the city.

It was assumed there would be 20 square miles tributary to the system before a high-level sewer would be required. Twelve below Grade Forty, and 8 above, in which the prospective population was estimated to ultimately reach 800,000, producing 75 gallons of sewage per day per capita, or 60,000,000 gallons in the aggregate. Provision was made for rainwater, equivalent to one-fourth of an inch in twenty-four hours per acre, on tributary area, by increasing the capacity of the system 100% above the maximum dry weather flow. A rainfall or thaw exceeding one-fourth of an inch in twenty-four hours was provided for by regulating gates at the junction of the common sewers with the intercepting, which operate to discharge their contents along the water front. The gates are opened by a rise of sewage in the intercepting system above a certain level.

The first year (1884) the system was in full operation, when but a part of the common sewers were connected, these gates were opened 24 times. Since then no record has been kept, either by the Metropolitan or Boston sewerage authorities, of the number of times the discharge takes place. The dry weather flow of the sewage in 1884 was about 24,000,000 gallons per day. The dry weather flow at the present time varies from 55,000,000 to 75,000,000 gallons, influenced in measurement to some degree by defective action of the pumps at the calf pasture.

To this system Boston has added, since 1888, not less than 132 miles of common sewers, and, through the action of the legislature in creating the South Metropolitan Sewerage District, a drainage area of 51 square miles was added to the original 58, in which the mileage of sewers now connected is 307, making a total of 439 miles increase since 1888.

What proportion of the total miles of sewers are built on the separate system, and what proportion on the combined, is immaterial for the purpose of this communication, as the evidence is conclusive the system has for many years been overburdened. Recognizing this fact, in 1898, the Metropolitan Commissioners asked the legislature for authority to construct a high-level sewer, to tap the intercepting system at the corner of Ruggles Street and Huntington Avenue, and, through a force main, from a pumping station on Ward Street, deliver the sewage into a high-level sewer, 34 feet above mean low water, on Alphonsus Street. From this point the sewage is to flow by gravitation through Jamaica Plain, Hyde Park, Milton and Quincy, to about a mile beyond Nut Island, and discharge in the harbor, 15 miles from the starting point. A part of this sewer is under contract and now in process of construction, and is estimated to cost $4,500,000. To what extent, if any, this will relieve the present storm overflow in the Charles River is uncertain, as no study has been made of the question. One excellent authority says it will accomplish something in this regard. Another, equally as good, says, "By the time it is put in operation, the enormous excess of storm flow above the capacity of both systems, and the addition of tributary sewers under construction or projected, will prevent any appreciable diminution of the present volume or frequency of discharge into the river."

In 1894 the Harbor and Land Commissioners in the investigation of the then proposed Charles River dam, endeavored to ascertain the volume of this discharge and what influence it would have on the proposed basin.

No reliable data was obtainable as to volume. Mr. Stearns thought it amounted to .80 of 1%, and would equal the constant discharge of 3,000 persons if the total number in the district drained was 300,000, and that of 6,000, with a population of 600,000. Mr. Mattice, basing his estimate on maximum pumping capacity at the calf pasture, and the number of days in the year 1893, when the rainfall exceeded one-fourth of an inch, concluded an overflow would take place 37 times, and the total volume amount to the entire sewage of Boston for two and three-quarter days. The fact of the pumps being badly out of repair, and therefore incapable of doing anything like their presumed maximum work, seriously impaired the value of this estimate.

Professor Porter estimated the yearly volume discharged to be equivalent to twelve days' flow of the sewers connecting with the river. I testified to the fact of having kept a record of overflow of the Hereford Street sewer for ten months of 1893, and that it took place 46 times, and having personally observed many times the overflow at St. Mary Street, and in the Fens where Stony Brook enters; a flow of 20,000,000 gallons in twenty-four hours was not uncommon and, had I known what I have since learned of the backward flow in the trunk sewer above Gainsborough Street, I should have guessed considerably higher; for this means the entire flow of the system above, estimated at 20,000,000 gallons per day in dry weather, goes into river at St. Mary Street, and there are 15 other places where sewers overflow into the river between Craigie's bridge and Brighton, not including those on Stony Brook.

It will be remembered the city of Boston borrowed $25,000 to dredge the Fens basin two years ago. The work was done by a hydraulic dredge, which discharged the material at the Beacon Street sluiceway. The basin was presumed to be made 7 feet deep. Since that work, Stony Brook has flowed enough sewage and silt to form a bar just below the bridge, covered now only by from 3 to 6 inches of water at Grade Eight. To prevent further accumulation, a survey has been made for a sewer, beginning at what is now the end of Stony Brook and finally discharging into the river through an opening in the structure erected on the sea wall west of Charles Gate.

Relative to the effect of the storm flow of sewage on Charles River basin if the dam were built, there was a wide divergence of opinion expressed at the hearing, the weight of which I am disqualified to measure, having expressed an opinion, a dam such as proposed would nullify the plan for flushing the Fens basin with every available tide in warm weather, and without this the region would be rendered uninhabitable by the large amount of sewage discharged there. Mr. Stearns, when questioned on this matter, said, "Stony Brook might be diverted to the Charles, and if necessary a propeller might be employed to create a current in the Fens water. Regardless of what may be the best remedy for existing conditions, it must be apparent that storm water is the primal cause of the difficulties.

In this journal of March 12, 1891, will be found the following, relative to the admission of storm water to Boston's system: "With the rapidly increasing population the city, and the extensions now under construction designed to accommodate the inhabitants of Waltham, Newton, Watertown, Brookline and Brighton, large volumes of sewage must in time of storm be discharged into the Charles River basin or be conducted to the outfall. . . . In the interest of economy, and the sanitation of the river and upper harbor, it is high time we ceased to construct what is known as the combined system and adopt what Colonel Waring introduced at Memphis, and known as the 'separate system.' For it seems the height of folly to conduct the rainwater falling on the roof of my house to the pumping plant at the calf pasture, where it must be elevated 32 feet before it can be disposed of, when it might be discharged by gravitation in a natural water course within 200 feet."

It does not seem to be strong language to add, in light of our experience, that what appeared to be folly ten years ago is now madness.

HENRY J. BARNES, M.D.

METEOROLOGICAL RECORD.

For the week ending April 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...21	29.96	43	45	41	100	100	100	N.E.	E.	15	21	G.	R.	.24
M..22	30.05	46	49	42	96	98	97	N.E.	N.E.	5	8	O.	R.	.04
T...23	30.18	42	42	41	100	98	99	N.E.	N.E.	11	12	R.	R.	T
W..24	29.96	42	43	41	92	96	94	N.E.	N.E.	12	7	O.	R.	109
T...25	29.88	44	45	42	100	95	98	N.E.	N.E.	14	18	O.	R.	210
F...26	30.21	45	50	40	64	70	67	N.	N.E.	24	18	O.	C.	.08
S...27	30.48	43	48	38	64	43	54	N.E.	N.E.	22	9	F.	C.	.0
☞	30.10		46	41			37							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 27, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.
New York	3,437,202	1,437	436	21.25	13.57	3.03	.41	4.00
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	485	121	21.24	16.08	1.65	.62	1.44
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	162	47	22.82	12.96	—	61	3.70
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	121	36	23.14	15.70	.83	3.30	3.30
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	52	15	19.20	23.04	1.92	—	—
Boston	560,892	246	76	25.20	19.92	2.84	1.62	6.50
Worcester	118,421	37	11	21.60	10.80	—	—	—
Fall River	104,863	23	7	43.50	17.40	—	—	—
Lowell	94,969	34	12	14.70	20.58	2.94	5.88	—
Cambridge	91,886	25	6	16.00	12.00	—	—	4.00
Lynn	68,513	17	3	17.65	23.52	—	—	5.88
Lawrence	62,559	15	8	20.00	—	—	—	6.66
New Bedford	62,442	21	7	4.76	4.76	—	—	—
Springfield	62,059	15	3	6.67	—	—	—	—
Somerville	61,643	19	3	15.78	15.78	—	—	—
Holyoke	45,712	14	7	21.42	7.14	—	7.14	—
Brockton	40,063	11	1	27.27	27.27	—	—	—
Haverhill	37,175	15	1	26.66	20.00	6.67	—	—
Salem	35,956	13	6	61.52	—	—	—	23.07
Chelsea	34,072	12	3	16.66	—	—	8.33	—
Malden	33,664	10	3	10.00	20.00	—	—	—
Newton	33,587	7	—	—	—	—	—	—
Fitchburg	31,531	7	3	14.30	14.30	—	—	—
Taunton	31,036	4	1	—	75.00	—	—	—
Gloucester	26,121	9	1	22.22	—	—	—	11.11
Everett	24,336	8	5	25.00	12.50	—	—	12.50
North Adams	24,200	8	1	25.00	—	—	—	—
Quincy	23,899	2	1	50.00	—	—	—	—
Waltham	23,481	9	2	—	33.33	—	—	—
Pittsfield	21,766	10	—	10.00	20.00	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	6	2	16.67	16.67	—	—	—
Medford	18,244	4	1	25.00	75.00	—	—	—
Newburyport	14,478	8	2	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,892; under five years of age 837; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 701, acute lung diseases 430, consumption 376, diphtheria and croup 99, diarrheal diseases 44, scarlet fever 63, influenza 10, typhoid fever 29, whooping cough 22, measles 14, cerebro-spinal meningitis 22, smallpox 9, erysipelas 19.

From whooping cough, New York 6, Philadelphia 3, Baltimore 1, Pittsburg 4, Boston 4, Lowell 2, Holyoke 1,

Chelsea 1. From cerebro-spinal meningitis. New York 6, Baltimore 1, Providence 1, Boston 5, Worcester 3, Lynn 1, Salem 2, Pittsfield 1, Beverly 1, Framingham 1. From scarlet fever, New York 44, Philadelphia 8, Pittsburg 1, Providence 1, Boston 7, Lowell 1, Haverhill 1. From typhoid fever, New York 7, Philadelphia 7, Baltimore 2, Pittsburg 6, Boston 4, Fall River 2, Clinton 1. From measles, New York 9, Pittsburg 2, Boston 3. From erysipelas, New York, 9, Philadelphia 4, Baltimore 3, Pittsburg 1, Boston 2. From smallpox, New York 8, Philadelphia 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending April 13th, the death rate was 19.2. Deaths reported, 4,339; acute diseases of the respiratory organs (London), 345, whooping cough 130, diphtheria 68, measles 112, fever 19, scarlet fever 31.

The death rate ranged from 11.2, in Croyden, to 25.0, in Liverpool; Birkenhead 15.7, Birmingham 21.8, Blackburn 21.7, Bolton 17.6, Bradford 18.9, Brighton 19.2, Bristol 20.3, Burnley 20.3, Cardiff 11.6, Derby 18.1, Gateshead 19.5, Halifax 18.5, Huddersfield 16.3, Hull 16.9, Leeds 19.0, Leicester 21.4, London 18.3, Manchester 24.2, Newcastle-on-Tyne 23.7, Norwich 19.3, Nottingham 17.4, Oldham 21.4, Plymouth 18.1, Portsmouth 16.2, Preston 23.9, Salford 20.8, Sheffield 20.4, Sunderland 22.0, Swansea 16.5, West Ham 12.3, Wolverhampton, 17.9.

RECENT DEATHS.

DR. SAMUEL G. DORR, postmaster of Buffalo, N. Y., died on April 28th. He was born in Dansville, N. Y., in 1840, and had practised in Buffalo since 1875. He was appointed postmaster in 1899.

DR. ABRAHAM DEYO, a prominent physician of Ulster County, N. Y., died at Gardiner, N. Y., on May 4th at the age of seventy-one. He was a graduate of the University of the City of New York and of the College of Physicians and Surgeons, New York.

DR. SAMUEL K. LYON, a highly esteemed practitioner of New York and for thirty years a surgeon of the Police Department, died suddenly from pulmonary hemorrhage on May 4th. He was a native of New York and sixty-three years of age. After graduation from Columbia College he studied medicine with Dr. Willard Parker, and received the degree of M.D. from the College of Physicians and Surgeons, New York, in 1866.

SOCIETY NOTICES.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. — The fifty-seventh annual meeting of the American Medico-Psychological Association will be held at Milwaukee, Wis., June 11 to 14, 1901.

AMERICAN CONGRESS OF TUBERCULOSIS. — The American Congress of Tuberculosis will be held at the Grand Central Palace in the city of New York, May 15th and 16th, and perhaps May 17th, 1901. In joint session with the Medico-Legal Society of New York.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — A regular meeting of the Society will be held at 3 Park Street, Boston, Mass., on Thursday, May 16, 1901, at 7.30 P.M.

Papers: Dr. Emily Upham, "A Peculiar Case of Malaria." Dr. Harriet E. Lothrop, "The Pathology of Malaria; Diagnosis by Blood Examination."

Discussion: Dr. Mary F. Hobart, "Malaria as Met in General Practice in and Around Boston." Dr. Elizabeth T. Gray, "Malaria as a Complication in Surgical Work."

DR. AGNES C. VIETOR, Secretary,
Trinity Court, Boston.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 2, 1901.

D. A. CARMICHAEL, surgeon, to assume temporary command of the San Francisco quarantine station, April 27, 1901.

C. P. WERTENBAKER, passed assistant surgeon, to proceed to Prescott, Ark., for special temporary duty, April 27, 1901.

J. B. GREENE, passed assistant surgeon, detailed for temporary duty in the Bureau, April 29, 1901.

V. G. HEISER, assistant surgeon, to proceed to Norfolk, Va., for special temporary duty, April 27, 1901. To proceed to Quebec, Canada, and report to the United States Commissioner of Immigration for duty, May 1, 1900.

W. F. SCHLAAR, hospital steward. Granted leave of absence for twenty-six days, March 29, 1901.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED MAY 4, 1901.

B. L. WRIGHT, assistant surgeon, ordered to the Massachusetts, May 1st.

S. S. RODMAN, assistant surgeon, detached from the Adams, May 11th, and ordered to the Alert.

H. L. LAW, surgeon, retired, detached from the Recruiting Rendezvous, Buffalo, N. Y., and ordered home.

BOOKS AND PAMPHLETS RECEIVED.

Wound of the Trachea, with Suture and Union by First Intention. By E. S. Goodhue, M.D., of Honolulu, H. I. Reprint. 1901.

Tridosha-Theory. By Raghunatha Sakharama Gânu, Medical Practitioner, Ellichpur, Berar, India. Bombay: Javaji Dadaji's "Nirnaya-sagar" Press. 1901.

Aphorisms, Definitions, Reflections, and Paradoxes. Medical, Surgical and Dietetic. By A. Rabagliati, M.A., M.D., F.R.C.S. (Ed.) New York: William Wood & Co. 1901.

The Hospitals of Japan. By Edward C. Register, M.D., President of the Board of Medical Examiners, State of North Carolina; Ex-President of the Charlotte Medical Society. Reprint. 1900.

The Alumni Bulletin of the University of California Medical Department. Issued under the Auspices of the Alumni Association, April, 1901. Reprint. Illustrated. San Francisco, Cal.: L. Osborne Co.

Imperfect or Deficient Urinary Excretion as Observed in Connection with Certain Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital, Consulting Physician to the New York Hospital, etc. Reprint. 1900.

Some Results of Sanitorium Treatment of Phthisis. By D. J. Chowry-Muthu, M.D., M.R.C.S., L.R.C.P., Associate King's College, London; late Clinical Assistant Great Northern Central Hospital, London; Physician Inglewood Sanitorium, etc., etc. Reprint. Illustrated. 1901.

Misstatements of Antivivisectionists. Correspondence with American Humane Association. By W. W. Keen, M.D., LL.D., F.R.C.S. (Hon.), Late President of the American Medical Association; Professor of Surgery, Jefferson Medical College. Philadelphia. Reprint. Illustrated. 1901.

Twenty-Third Annual Report of the State Board of Health of the State of Connecticut. For the Year 1900. With the Registration Report for 1899 Relating to Births, Marriages, Deaths and Divorces. Printed by order of the Legislature. New Haven: Tuttle, Morehouse & Taylor Co. 1901.

Syphilis of the Upper Air-Tract. Some Remarks on its Diagnosis and Treatment. By George L. Richards, M.D., Otologist and Laryngologist, Fall River and Emergency Hospitals; Fellow of American Laryngological, Rhinological and Otological Society, etc. Fall River, Mass. Reprint. 1900.

Is it the Duty of the State to Care for the Tuberculous Individual? The Experience of Massachusetts. By George L. Richards, M.D., Otologist and Laryngologist to the Fall River Union Hospital; Fellow American Laryngological, Rhinological and Otological Society, etc. Fall River, Mass. Reprint. 1901.

Nephrectomy for a large Aneurysm of the Right Renal Artery, with a Résumé of the Twelve Formerly Reported Cases of Renal Aneurysm. By W. W. Keen, M.D., of Philadelphia, Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Reprint. Illustrated. 1900.

A Clinical Study of Diphtheria. Two Thousand Ninety-Three Cases Treated by the Writer at the Boston City Hospital. By Fred Grant Burrows, A.M., M.D., San Francisco, Cal., formerly Assistant Resident Physician, Department for Contagious Diseases, Boston City Hospital, Boston, Mass. Reprint. 1901.

A Case of Multiple Neuro-Fibromata of the Ulnar Nerve. By W. W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, and William G. Spiller, M.D., Professor of Diseases of the Nervous System in the Philadelphia Polyclinic, Associate in the William Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Reprint. Illustrated. 1900.

Original Articles.

THE TREATMENT OF PSOAS ABSCESS BY INCISION.

BY ROBERT W. LOVETT, M.D., BOSTON.

The treatment of psoas abscess has been extensively discussed, and rather widely-differing views are held by men of experience. It was thought that, possibly, the investigation of a group of cases occurring at the Children's Hospital might be of value in contributing to the question of the value of treatment by incision. The group of cases taken for investigation were those occurring on the second surgical service at the hospital, between July 1, 1890, and July 1, 1900, making a period of ten years, and all cases admitted to the service with psoas abscess during that time were considered.

The cases were all treated under the same conditions by the same surgical staff, and any value that they may have consists in the fact that all cases were included, and that in the majority of them the end result can be reported. The writer is indebted to his colleagues for their permission to publish their cases.

The questions arising are, of course, these: (1) What is the result of incising psoas abscesses so far as life and function of the limb are concerned, and (2) if incision is advisable, what is the best method of operation?

In the period just mentioned, 54 cases of psoas abscess were admitted to the wards. Five were not operated upon; 49 were operated upon. Of the 54 cases, it is possible to report on the present condition of 47; that is to say, to report on their condition some time in the late fall of 1900 or winter of 1900–1901.

Of the 5 cases not operated upon, 2 were treated expectantly and recovered permanently; the third was in such poor general condition that operation was not deemed advisable and the child died five months later without operation. The fourth died of intercurrent appendicitis while waiting for operation. It was, apparently, in no way connected with the abscess. The fifth case was treated expectantly, the present condition is not known.

Sex. — Of the 54 cases, 32 were boys, 21 were girls, and in 1 the sex was not stated. In Young's[1] group of 78 cases of Pott's disease complicated with abscess, there were 52 males and 26 females. This predominance of males over females is not characteristic of Pott's disease in general. In 4,670 cases from Gibney, Fisher, Taylor, Vulpius and the Children's Hospital, there were 2,405 males and 2,265 females.

Age.—The age of the children ranged from two and one-half to fourteen. Twenty-two cases were under six, and 6 cases were over ten. There seemed to be no especial predisposition toward any one age.

The *duration* of the disease at the onset of the abscess showed very little. Accuracy could not be expected from that class of patients, and it is well enough known that psoas abscess is a late rather than an early complication of Pott's disease. In 24 cases the duration was given as of periods varying from two to five years, and in the remaining cases the period was either stated as being shorter or was not known. As in many cases, the abscess was one of the first symptoms to call attention to the disease, such figures, when dealing with short periods, are unreliable.

Location of disease. —The location of the vertebral disease was as follows: Dorsal, 11; dorso-lumbar, 17; lumbar, 23; not stated, 3; making 54. Young's cases were as follows: In 74, dorsal, 43; lumbar, 31. Dollinger,[2] in 138 cases, found 44 in the dorsal region and 94 in the lumbar. It is interesting, in this connection, to note that Dollinger places the percentage of abscesses in the different regions of the spine as follows: Among cervical cases, 20.6 developed abscess; in dorsal cases, 11.6; and of lumbar cases, 40.1. Rushton Parker, collecting statistics of the occurrence of abscesses, estimated that 8% of dorsal cases developed abscess, 30% of dorsolumbar, and 70% of lumbar cases. These latter statistics are from a much smaller number of cases than those of Dollinger, as Parker generalized from 140 cases instead of from 700, as Dollinger did. The statistics, however, are of only relative value in either case.

Site of abscess. — The abscess occurred on the right side 21 times; on the left side 24 times; 4 times on both sides; and in 5 cases its location was not definitely stated.

The abscess presented in the iliac region 27 times; in the lumbar region (in the back) 15 times; in both lumbar and iliac regions 5 times and in the gluteal region 6 times.

The number of lumbar abscesses in this group is surprising and differs from other statistics, yet there is no reason to question the accuracy of the statement that the abscess appeared as a swelling on the back. Young reports 63 psoas and 21 lumbar abscesses, and Dollinger 123 psoas, 9 lumbar and 6 gluteal.

Temperature. — The temperature before operation was high in 12 cases and practically normal in 37. Its character was not stated in 5. This statement is based on an examination of the charts in each case, as they were incorporated in the records. It, therefore, justifies the statement that the majority of cases show no rise of temperature in connection with the abscess. An attempt was made to see if cases in which the temperature was high before the operation showed a higher mortality than in cases which were not high, with the following result:

Of the 12 cases where the temperature was high 7 were dead, 3 were alive and 2 were not heard from, making a percentage of 70 mortality where the result was known. Of the 34 cases where the temperature was practically normal, 10 were dead, 23 alive and 4 not heard from, making a mortality percentage of 33 where the result was known.

Although it is hardly justifiable to draw any definite conclusions from such a small group of cases, it is suggestive that in these 2 groups the mortal-

[1] E. B. Young, Boston Medical and Surgical Journal, cxliii, 19, 470.

[2] Die Behandlung, der Tub. Wirbel. Stuttgart, 1896.

ity was 70% where the temperature was high before operation, and only 33% where it was normal. Yet the cases where the temperature is high are probably the ones most urgently requiring operation.

The record of the bacteriological examination of the pus was unfortunately not kept in most of the cases. In only 6 was there a record, and in all those reported on it was sterile. The blood count, also, was only reported on in 10 cases, and in only 2 out of the 10 was the leucocyte count over 12,000.

Mode of operation. — The cases were next examined to see if any one mode of operation appeared to be better than the others.

The modes of operation were practically 3: Either a simple incision in the iliac region, a simple incision in the lumbar region, or an incision in both iliac and lumbar regions.

In practically all of the cases, drainage was obtained by a tube or by gauze, aud the abscess was not allowed to close immediately after operation.

As a rule, no extensive attempts were made to remove the pyogenic membrane, but the abscess was opened, wiped out by gauze or possibly washed out, or, in many cases, simply emptied and dressed.

If one may draw any conclusion from so small a group of cases, the evidence was strongly in favor of a single incision in either the iliac or lumbar region, and was against the double incision in both iliac and lumbar region. It is only fair to add that the cases operated on by the double incision were probably the worst cases in the series.

	Dead.	Alive.	Not known.
Of 13 cases opened by incision in iliac region	3	8	2
Of 14 cases opened by incision in lumbar region	4	9	1
Of 15 cases opened by incision in both lumbar and iliac regions	9	4	2
Of 6 cases opened by incision in gluteal region	1	4	1

This coincided exactly with my own experience in the matter, and I had for a year or two abandoned the double incision except when necessary. Dollinger had come to the same conclusion, and found that the less the abscess cavity was stirred up after incision the better. He opens by an incision in the iliac region 5 or 6 centimetres long, wipes the pyogenic membrane with dry tampons, does not irrigate the cavity, and drains with a thin tube, which is removed on the second or third day. I have pursued for the last year a somewhat similar method with the most satisfactory results that I have obtained in psoas abscess. The abscess is opened by a small incision inside of and near the anterior superior spine of the ilium. Its contents are emptied, the wound is sometimes irrigated and sometimes not, and it is drained by a tube. The second or third day after the operation, a plaster jacket is applied to the child, and in a day or two more he is placed in a sitting position. At the end of a week or two more, if he is in good condition, he is allowed to walk in moderation. It would, I think, be advisable if the affected leg were fixed in a plaster of Paris spica bandage in a position of extension, as suggested to me by Dr. Dane, to prevent flexion of the leg and consequent irritation of the muscle. By a large hole cut in the jacket, antiseptic dressings can be applied when necessary. My own experience has not been favorable to the early removal of the drainage tube, but Dollinger's reports seem convincing. A tube seems more satisfactory than gauze, which may merely plug a small opening.

A consideration of the figures to follow will show that recumbency of weeks or of months followed the operation in most cases. Also that death came long after operation as a result of general wearing out. It would seem natural, therefore, to try to discount these results by making the period of recumbency the shortest possible one, and by making the drainage efficient and free from the start. The iliac incision followed by the upright position, thereby making it the dependent point in the abscess cavity, seems best to fulfil these conditions, and it would seem as if the conditions for recovery were better.

After treatment. — With regard to recumbency after operation, in 45 cases where the notes were definite in that regard, the period was as follows. Two to four days, 4 cases; two weeks, 3 cases; two to four weeks, 8 cases; one to two months, 19 cases; two to seven months, 11 cases.

A *hectic* temperature developed after operation in 22 of the cases; there was no temperature that could be spoken of as hectic in 24; and it was not stated in 8.

Fecal fistula was noted in 4 cases. In all the cases, it was associated with those cases operated upon by the double incision (that is, one in the iliac and one in the lumbar region) and in 3 of the cases where the termination was known it proved fatal; in the fourth case the termination was not known.

Time of death.—In 14 cases where the time of death was known, the period showed very little, except that the majority occurred more than one year after operation. One case died six weeks after operation; 2 cases, six months; 3 cases, one year; 8 cases, one and a half to eight years.

Cause of death. — Nephritis caused death in 5 cases; tuberculosis meningitis in 2 cases, and 1 case died suddenly, without warning, six months after operation, in the Convalescent Home of the hospital. No autopsy was allowed, but it was thought that death was probably caused by a thrombus. In the other cases the cause of death could not be definitely stated.

Mortality.—Of the 49 operative cases, 17 (35%) are known to have died; 26 were alive in the early winter of 1900–1901, and the results were not known in 6 cases. It was thought that the mortality would probably be highest in those cases operated upon prior to 1896, because in these unfavorable results would have had time to develop. Of 20 cases operated upon prior to 1896, 10 died (50%), 6 lived, and in 4 the termination was not known. Of 34 cases operated upon from 1896 to 1900, 9 died (26%), 22 lived and 3 not known. In the group of cases operated upon prior to 1896, the mortality was 50%. These cases would seem to have the right to be considered as late results, as

in no case had less than five years elapsed since operation, whereas, if recent cases only are considered (that is, cases within five years), the mortality per cent. falls to 27.

Functional results. — It is possible to speak of the present condition of 26 of the cases. The sinuses are open in 9 cases and closed in 17. With regard to the general condition of these patients, of the 26 cases, 12 are well; that is to say, the sinuses are closed; they no longer require apparatus; they attend school or are at work, and they suffer practically no disability as the result of the psoas abscess. The general condition may be classed as good in 10 of the other cases. In these cases treatment is going on; they are making good progress; the sinuses are closed in some of them and open in others. The general condition was classed as fair in 3 and as bad in 1.

Other operative methods than incision have not been considered because they have not been used in this particular group of cases.

In children, the aspiration of the contents of the abscess is, of course, not practised as much as is necessary in adults. The aspiration of the abscess contents and filling with iodoform has not found a place in the hospital routine, and although extraordinary results are published by Bruns, Frænkel and others, the operation by incision, after expectant treatment has failed, has been the one regularly done at the hospital. The results, so far as mortality and functional results are concerned, seem to make it appear a justifiable operation not attended with an unreasonably high mortality per cent. in a disease whose mortality per cent. is high without operation.

The practical conclusions of this paper, so far as one can generalize from so small a number of cases, are: That fever is not necessarily an accompaniment of psoas abscess formation; that where it does occur, the prognosis is not so good as where it is absent; that the best method of operation is by a lumbar or an iliac incision, one or the other, and preferably the latter. It seems, on general principles, desirable to avoid recumbency for long periods, which, of course, makes drainage by an iliac incision almost impossible. It seems, therefore, best to put on a plaster jacket almost immediately after operation to enable the patient to sit erect and to enable the abscess to drain almost from the first. In this way the writer has obtained better results than by any other method.

INFANTILE SCORBUTUS.[1]

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

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DEFINITION.

Scorbutus is a constitutional disease associated with imperfect nutrition and due to some prolonged error in diet. It is characterized by anemia and a tendency to hemorrhage.

[1] Read at the Annual Meeting of the Bristol North District Society, April 18, 1901.

Infantile scorbutus has been but comparatively recently recognized. It was first described by English writers, notably by Barlow in 1883. It was brought to the attention of the profession in this country by the admirable paper of Northrup and Crandell in 1894. Since then many cases have been reported. The committee of the American Pediatric Society in 1898 collected 379 cases. Many have been reported since then. It is probable that many cases have not been reported in the last few years, as the interest in the disease has been less active since its more general recognition. While the more marked cases are now usually recognized, the milder cases are still often overlooked and misunderstood. It is uncommon under six months, and rare after two years. About two-thirds of the cases collected by the American Pediatric Society occurred in the last six months of the first year.

ILLUSTRATIVE CASES.

The following cases illustrate the symptomatology of the disease better, I think, than any detailed description of symptoms, although it may possibly be well to briefly sum up the symptoms later:

Case I. Eva McK., was born March 8, 1898. When about a week old she had hemorrhages from the gums, genitals and gastro-enteric tract, which were, undoubtedly, due to hemorrhagic disease of the newborn. She recovered and then did well until about the middle of August. She was fed on Horlick's Malted Milk mixed with water. About the middle of August, when six months old, she became "sore all over." Any motion or handling seemed to cause pain. Four or five days later swelling was noticed about the knees and, soon after, about the ankles. Still later, swelling appeared about the wrists and then about the shoulders. For several days before she was seen she had passed a little blood from the bowels. Her mouth began to bleed the day before. She passed but little urine, which was not red.

Physical examination. — She was small and poorly nourished. Pallor was marked. Her expression was that of great fear. There were no teeth. The gums were not swollen or discolored. The hemorrhage came from a slight ulceration in the frenum of the tongue. There was swelling near the sternal ends of both clavicles. There was no depression of the sternum. The heart and lungs were normal. She lay on her back with a slight general kyphosis of the spine. The back was apparently tender. The shoulders were arched, the arms flexed at the elbows and the hands clenched. There was swelling over the upper ends of both humeri and about the shoulder joints. There was also marked swelling over the lower part of the diaphysis of both bones of both forearms. There was no redness or heat. The abdomen showed nothing abnormal. The liver and spleen were normal. The thighs were held flexed at a right angle and the knees at an acute angle. There was no swelling about the upper portions of the femora, but extension at the hips was sharply limited at a right angle. Only a few degrees of motion was possible at the knees. There was marked swelling about the lower ends of both femora, not involving the knee joints. The swellings were not red or hot. There was also marked swelling of the lower portion of the diaphysis of both bones of the right leg, and beginning swelling in the left leg. These swellings were not red or hot. All the swellings were tender. There were no subcutaneous hemorrhages. She was admitted to the Infants' Hospital and promptly recovered under treatment.

Case II. Helen M., was born December 3d. She never nursed, but was fed on Nestlé's Food for the first

three months. This was changed to Horlick's Malted Milk because of gastro-intestinal disturbance. She continued to take this until she was ten months old, when I first saw her. On this food the dejections were normal and she did not vomit. Early in July, when seven months old, it was noticed that she did not use her legs and that her feet were tender. A few weeks later she began to draw up both knees and soon held them completely flexed. The mouth began to be sore about the first of August. The tenderness in the legs increased steadily, and about the middle of September swelling was noticed in both knees, both ankles and both wrists. I first saw her October 8th, when she was ten months old. She had then been kept on a pillow for several weeks because of the excessive pain which any movement caused. Even bathing had been omitted for the last fortnight. She had been seen by many physicians, most of whom had considered the case "rheumatism," and some of whom had considered it "Pott's disease." All had given an unfavorable prognosis.

Physical examination. — She was fairly developed and somewhat emaciated. The skin was pale and dry. There were a few purpuric spots here and there on the body and extremities. Only the lower edges of the two upper middle incisors were visible, the body of the teeth being covered by the dark-purple, swollen gum. The same condition, but to a less marked degree, was present about the four lower incisors. The heart, lungs and abdomen were normal. She was unable to sit alone, but when supported, the spine showed a marked general kyphosis, greatest in the lower dorsal region. There were no signs of rickets beyond a slight rosary. Both wrists were swollen, the swelling being most marked about the lower epiphysis and diaphysis on each side. They were not tender or painful, and all the motions of the arms were normal. She lay on her back with the thighs flexed on the body and the knees flexed to a right angle on the thighs. There was a marked swelling about the lower epiphysis and diaphysis of the left femur, which was very tender but not hot or red. The same condition was present on the right, but to a less degree. No motion was allowed at the knees. The motions at the hips and ankles were normal. The child cried out in terror when approached, so great was her fear of being touched. She was given a carefully modified, pasteurized milk, and ordered to take the juice of a lemon daily.

In a week she could be moved a good deal without pain. The swelling at both wrists and knees was diminished, the knees were held almost extended, and could be flexed about three-quarters of the normal amount, while the mouth was much improved. In another week she had shed her pillow, was being bathed regularly, held her legs almost extended, and had begun to use them. Motion was completely normal in the right knee and almost normal in the left. The swelling at the knees was almost gone, and that at the wrists entirely so. The mouth was well and she had another tooth. She continued to improve rapidly.

CASE III. Marion S., was nursed about three months. She was then fed on Eskay's Food. As this did not agree, she was put on Mellin's Food with milk. She seemed to do fairly well until about twenty-one months old when she was beginning to walk alone. About that time she fell on the floor, and after this did not use the right side as well as formerly. She soon began to complain when her legs were touched. The tenderness in the legs steadily increased. She soon stopped walking, and later could not sit without support. Then she began to lose the use of the arms and legs. She soon kept the thighs and knees flexed and never extended them. Swelling of the arms and legs developed gradually. About five weeks from the time of the fall the gums began to swell a little, but did not swell much until a few days before she was seen. She had no hemorrhages. She lost much weight. She was first seen when twenty-three months old. At that time she was taking uncooked milk and water, Mellin's Food, Bovinine and eggs.

Physical examination. — She was fairly developed and nourished. Her color was fair. The fontanelle not quite closed. She had fourteen teeth. The gums were swollen and purple, especially about the back teeth. She moved her head freely. She was able to sit up without support, but her back was tender. She moved her shoulders and elbows freely. There was marked swelling of the lower part of the diaphysis of both ulnæ and both radii. These swellings were very tender, but not red or hot. She moved the wrists but little. She held the thighs and knees flexed. Extension caused pain but flexion did not. There was no swelling of the joints, but possibly a little about the lower portions of the tibiæ. There was slight edema of the feet and lower legs. There were no subcutaneous hemorrhages.

The diet was continued unchanged, but beef juice and orange juice were added to it. A letter was received a week later from the mother, from which the following are extracts: "She does not suffer, but is far from well yet. Her wrists are still swollen, but she can move them any way she wants to. Her gums are better. I can see a little improvement every day. She tries to stand up occasionally, but cannot bear much weight yet. She is happy and plays as she used to. We all think it is wonderful how she started to improve before she had taken the juice of a whole orange."

It would have been difficult for anyone having a knowledge of the disease to have mistaken the diagnosis in these cases. It was less evident, however, in the following one:

CASE IV. John C., was the eight months' old son of a physician, a specialist in diseases of the nervous system. He had always been fed regularly with proper amounts of a modified milk which had been vigorously sterilized, sometimes for several hours. He had always been well, but had taken less food for a month or two and had lost some weight. Two weeks before I saw him he had tumbled over on the bed and was thought to have doubled his legs under him. He cried a good deal for the next twenty-four hours and disliked to have his legs, especially the right, moved. He continued to have more or less pain and tenderness in his legs, and cried vigorously whenever moved. His father had made a probable diagnosis of infantile paralysis.

Physical examination. — He was fairly developed and nourished. The head was large and slightly rachitic in shape. There was a slight rosary and slight enlargement of the epiphyses at the wrists. He had no teeth and the gums were normal. He preferred to lie on his back with his right knee flexed, and cried out when the back or legs were moved, the right leg being the more tender. Passive movements were all normal, however, and the physical examination was otherwise negative. The temperature was, and had been, normal. The case was considered to be one of scurvy and the fall merely a coincidence. He was put on an uncooked, modified milk and given small doses of lemon juice. On account of the tenderness he was put on a Bradford frame, and the right leg put up in a light plaster. As he did not improve much in the course of a week the lemon juice was omitted, and he was given the juice of half an orange daily. The plaster was kicked off nine days later; the next day he was taken off the frame apparently perfectly well.

The delay in the improvement in this case was undoubtedly due to the insufficient size of the doses of lemon juice.

The next case might well have been overlooked, but was undoubtedly scurvy:

CASE V. Robert M., was born about May 1st. From the time he was a month old his digestion was extremely feeble. He was fed on a modified milk, which was both peptonized and pasteurized. He was doing well up to November 1st. He then began to cry out a little when moved. About November 15th his right leg

became very tender and he ceased to use it. Examination showed a little thickening about the lower end of the diaphysis of the right femur. The rest of the physical examination was entirely negative. The peptonization and pasteurization were both stopped, and at the end of a week motions were perfectly free, and there was no tenderness. There was still a little thickening. Orange juice was not given until this time. It was then begun in small doses as a precautionary measure, and continued for several weeks.

The following case is an example of the mildest type of the disease, a form which, I believe, is very common, and which is very often unrecognized:

Case VI. Catherine L., was born March 12th, several weeks premature. She was fed on a modified, pasteurized milk, but always had a very delicate digestion. In the latter part of November, when about eight months old, she began to cry if any attempt was made to let her sit up unsupported. Her mouth began to be a little sore, and in the course of a week the gums were swollen and purplish about the two lower teeth. She was ordered two teaspoonfuls of orange juice twice a day. The mouth was entirely well in a week and she could sit up without pain or discomfort.

Various symptoms which were not present in these cases may occur in the severer forms of the disease. Hemorrhages into the skin are not uncommon. They may occur from the gastro-intestinal tract or into the brain. Hemorrhages behind the eye may cause proptosis. Renal hemorrhage occurs occasionally.

SYMPTOMS.

Anemia and malnutrition.— Anemia and malnutrition are probably the earliest symptoms. There is nothing characteristic about them and they alone are not sufficient to warrant the diagnosis of scurvy. Their presence should, however, put one on one's guard.

Pain.— Pain is almost always the first symptom noted. It occurs on motion or on handling and usually not when the baby is quiet. It is not only the first symptom but the most persistent and the most constant. It increases steadily in severity. On account of the pain on motion the children are fearful of being touched. Their expression of abject terror when anyone approaches them is most characteristic. The pain is most often in the legs, next in the back, and next in the arms. As the result of the pain on motion they are unwilling to use their legs and arms. Hence paralysis is often suspected. The extremities are often held rigidly; the legs are usually held flexed at the thighs and at the knees.

Swelling.— As the disease progresses swellings of the limbs appear. These are more common in the lower than in the upper extremities, and more common in the thighs than in the legs. They are usually situated at the ends of the diaphyses and are pyriform and symmetrical in shape. They are usually tender, sometimes reddened, but never hot. They are due to subperiosteal hemorrhage. If the hemorrhage is extreme, separation of the epiphyses may result. Swellings very rarely occur over other bones than those of the extremities.

Gums.— Swelling, sponginess and ulceration of the gums are very common symptoms, but are almost always preceded for some time by pains and often by swelling of the extremities. The gums are purple and often hemorrhagic. The picture is that of stomatitis ulcerosa. It was formerly supposed that the gums were not involved unless there were teeth. In about one-half of the cases collected by the American Pediatric Society in which there were no teeth, the gums were, however, involved. In some cases redness and swelling of the gums precede the other symptoms and sometimes are the only manifestation of the disease. The prompt relief of these symptoms when the diet is changed or when orange juice is administered is proof of their scorbutic nature.

Hemorrhages.— Cutaneous hemorrhages are common in the severe cases. Hemorrhages from the nose, stomach and bowels are not very infrequent in the worst cases. Hemorrhage into the orbit may push the eyes forward, causing proptosis. Hemorrhages may also occur in the muscles or in any of the internal organs.

Urine.— Hematuria is a rare symptom, and albuminuria rather infrequent. Nephritis, however, sometimes develops.

Blood.— As already noted, anemia is one of the earliest and most constant symptoms. There is but little data as to the nature of this anemia. What little there is, however, shows that the characteristics are those of secondary anemia or of the anemia of hemorrhage.

Fever.— Fever is not a prominent symptom and is usually absent. When present it is probably due to accidental causes.

PATHOLOGY.

The pathologic lesions have already been mentioned in speaking of the symtomatology. They are briefly: Anemia, hemorrhage and stomatitis ulcerosa. As already detailed, hemorrhage may occur into the skin and mucous membranes and into any of the tissues or internal organs. The most characteristic form of hemorrhage is subperiosteal of the long bones. The femora are most commonly affected. Separation of the epiphyses may occur. Nephritis is an uncommon complication.

DIAGNOSIS.

In general the only thing necessary for the diagnosis of all but the mildest cases is a knowledge of the disease and of its symtomatology. If these are kept in mind it will seldom pass unrecognized. The diseases for which it is most commonly mistaken are rheumatism, purpura, rickets, syphilis, Pott's disease, infantile paralysis and injury.

Rheumatism.—Rheumatism is almost unknown at the age at which scurvy occurs most frequently. It is more commonly accompanied by fever, seldom by hemorrhage and almost never by stomatitis. Swellings are unusual in rheumatism at this age. If present they are in the joints instead of in the diaphyses, are hot and usually red. In case of doubt the quick response to treatment would soon settle the diagnosis.

Purpura.— In very severe cases of purpura the symptoms may be the same as in scorbutus.

In purpura, however, the swelling of the extremities are among the latest symptoms; in scorbutus, among the earliest. In purpura, stomatitis and hemorrhage into the skin and mucous membrane are the earliest symptoms; in scorbutus, among the latest. Mild cases of purpura, on account of sequence of symptoms, could hardly be mistaken for scurvy. The theraputic test would here also settle the diagnosis conclusively.

Rickets. — The diagnosis between scurvy and rickets is an easy one. If there is any question between the two the condition is almost certainly scurvy. Confusion could hardly arise except on account of swellings of the extremities. Swellings in rickets large enough to cause confusion would certainly be accompanied by a rosary and probably by deformity of the thorax and head. Moreover, they are at the junction of the epiphysis and the diaphysis instead of at the lower end of the diaphysis. They are not accompanied by stomatitis and hemorrhage and seldom by pain.

The diagnosis of scurvy complicating rickets is hardly more difficult. As a rule, pain and tenderness in rickets are due to a complicated scorbutus. The presence of stomatitis ulcerosa, hemorrhages and swellings about the diaphyses makes the diagnosis plain.

Syphilis. — Scorbutus could hardly be mistaken for syphilis. The swellings of syphilis are more chronic, less tender, and at the junction of the diaphysis and epiphyseal line. They are seldom associated with hemorrhage and never with stomatitis ulcerosa. In syphilis, moreover, there may be the history of the disease in the parent or in the past, and other characteristic symptoms are always present.

Pott's disease. — Pott's disease is rare in the first two years of life. The onset is very slow and the pain and tenderness not as extreme as in scurvy. It is not associated with swellings in the extremities, hemorrhage or stomatitis. There is usually a sharper deformity in the spine and often physical signs of tuberculosis elsewhere.

Acute anterior poliomyelitis. — The onset of infantile paralysis is acute and usually febrile. Pain and tenderness are unusual. If present they occur early and continue but a few days. There is no swelling. There is flaccidity instead of spasm. It is never accompanied by hemorrhage or by stomatitis. Muscular atrophy, loss of knee jerks and limitation of the paralysis soon develop.

Injury. — Injury might be suspected if the development of the scurvy was by chance associated with a fall or blow. The presence of other characteristic signs of scurvy should, however, prevent confusion.

Finally, an unaccountable stomatitis, general hyperesthesia and pain on being moved or taken up, especially if they occur in bottle-fed babies, should always arouse the suspicion of scurvy. If these earliest symptoms are recognized many miraculous cures later will be prevented, but the babies will be saved a good deal of unnecessary suffering.

ETIOLOGY.

Race and sex are unimportant. Age is an important factor, the majority of cases occurring in the second six months of life. It is probable that inherited feebleness, previous ill health and improper hygienic surroundings may predispose to the disease. The importance of improper hygienic surroundings cannot be great, however, as the vast majority of cases occur in well-to-do families. There has been much discussion as to the relation between rickets and scurvy. It is probable, however, that there is no real relation between them, although rickets may possibly act as a predisposing cause of scurvy by weakening the general resistance. The tenderness met with in rickets is probably almost always due to a complicating scorbutic condition. Acute rickets is scurvy and not rickets at all.

The chief, if not the sole, cause of infantile scurvy is to be found in the diet. It is difficult to say, however, to what error in diet scurvy is due. The majority of cases arise in babies fed on proprietary foods. On account of the great number of cases in infants fed on proprietary foods prepared without milk, and on account of the rapid recovery in many cases when uncooked milk is given, as well as the rapid response to beef juice and orange juice, it was supposed that scurvy was due to the lack of "freshness" in the food. As the disease has in several instances arisen in infants fed exclusively on breast milk or on raw milk, and recovery has taken place when the food has been changed from breast milk to sterilized milk and from raw milk to starchy foods, it is evident that lack of "freshness" cannot be the sole causative factor, although it may be an important one. In fact, it seems at present impossible to draw any definite conclusions as to what the element or elements in the food are whose presence or absence causes scurvy, for scurvy has developed on all sorts of foods, seemingly suitable or unsuitable as the case may be, and change of food sometimes from one apparently suitable to one apparently less so has been followed by recovery. It is probable, however, that the faults are either the lack of certain elements in the food necessary for nutrition or their presence in some non-assimilable form. The following conclusions of the Committee of the American Pediatric Society certainly seem within our knowledge. It is doubtful if any more specific ones are justifiable: (1) "The development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child . . . (2) in general, . . . the farther a food is removed in character from the natural food of the child the more likely its use is to be followed by the development of scurvy."

PROGNOSIS.

Death is not infrequent in unrecognized and untreated cases. Recovery is almost certain with proper treatment if the child is not too much reduced. Improvement is almost immediate, and recovery complete within two or three weeks.

TREATMENT.

The treatment is simple. It consists of regulation of the diet and the administration of orange or lemon juice. Many cases will recover on either method alone, but the combination is far preferable. The diet should be that suitable for the infant of the given age—breast milk, modified cows' milk, beef juice. Modified milk should, unles contra-indicated by complicating conditions, be given uncooked. The juice of a half or of a whole lemon or orange should be given daily. Scorbutic infants almost always take it with avidity. If they do not, they must be made to take it. It almost never disturbs the digestion.

No drug is of the slightest utility in the treatment of this disease. During convalescence iron may be indicated for the anemia. Complicating gastro-enteric disturbance should be treated symptomatically, if necessary.

The tenderness of the back and limbs demands that the infant be kept quiet. In the severer cases recumbency on a Bradford frame or light splints to the affected limbs will afford much relief during the first few days; they are rarely needed longer.

NEURITIS RECURRING AFTER ATROPHY OF BOTH OPTIC NERVES IN A CASE OF BRAIN TUMOR.

BY EDWARD R. WILLIAMS, M.D., BOSTON.

The patient, a woman twenty-two years old, began to have attacks of headache and vomiting in the autumn of 1897. During the following winter she was compelled to stop work on account of failing sight which was not improved by glasses. In the summer of 1898 she complained of vertigo and numbness of the right side. This dizziness caused her to stagger more or less when she started to walk, but after a few seconds this would disappear. She then sought relief at the eye-clinic of the Boston City Hospital. The hospital records read: "Double optic neuritis. Much swelling of each disc; arteries obscured, veins large and tortuous; typical, macular changes of albuminuric retinitis. Says urine has been examined and pronounced healthy." Since then her memory has failed somewhat.

In August, 1899, she consulted me at the Boston Dispensary. In addition to her rapidly failing vision she presented only obscure anemic symptoms. The heart and kidneys were healthy. Upon examining her eyes the pupils were found equal and responsive to light. Vision in each eye was only sufficient to count fingers at three metres' distance. In the right fundus there was a pronounced atrophy of the papilla, and old hemorrhagic spots in the macula. In the left eye there was a similar degree of optic atrophy, with old hemorrhages about the macula. She said her sight had grown rapidly worse since the beginning of the year. After a period of quiescence, the vomiting and headache recommenced, so that on October 24, 1899, she was admitted to the City Hospital with a diagnosis of probable brain tumor. At that time an examination of the eyes showed: The pupils equal, regular and responding slightly to light, muscular movements apparently normal. The patient states that she sees nothing with the left eye and with the right only objects held to the extreme temporal side. Heart and kidneys normal. There is no tenderness of extremities, no loss of force in arms and legs and no impairment of sensation.

I examined her eyes two days after admission to the hospital, and found that the atrophy of both discs had increased very materially since my last examination. The veins and arteries had both begun to appear threadlike. The left eye had no perception of light, while the right eye could still discern the movements of the hand only on the temporal side.

The day before her discharge on November 6th I made a second examination. The discs in each eye then showed a still further progress of the atrophy, the color was greenish-white, and both the arteries as well as the veins were reduced to fine, threadlike lines. There was some nystagmus and no perception of light in either eye when tested with the mirror.

During the month spent in the hospital all active symptoms again subsided, and did not reappear till after her return home.

Twelve days after her discharge from the City Hospital her condition was so serious that she was admitted to the Carney Hospital on November 19, 1899. Examination then showed: "Left pupil was much dilated; neither responded to light. No perception of light in either eye. Right knee jerk was absent; sensation was apparently diminished over both legs and body up to waist line; muscular sense impaired; delayed sensation in both arms; mental apathy, which probably accounted for the sensory disturbances." On the following day "the pupils were somewhat contracted but equal, and responded well to the light."

From that time on the woman remained in a semicomatous condition. When questioned it was very difficult to get replies, yet, after a few minutes, she would answer intelligently.

Dr. Kilburn examined her eyes two days before death and reported: "Double optic neuritis; more pronounced in the left eye. The veins were large and tortuous and the swollen discs gave a typical picture of neuritis. The coma increased, and the patient died on November 23, 1899."

The result of the post-mortem examination, performed by Dr. George B. McGrath, follows: "The base presents in the interpeduncular space and impinging upon the optic chiasm, a soft, friable, greyish-pink mass of about the size of a horse chestnut; this mass presses upon but does not invade the second and third cranial nerves. Incision into the lateral ventricles, made through the mesial surfaces of the hemispheres, reveals on the left side anterior portion of the ventricle, a mass, 4 x 3 x 2 centimetres projecting freely into the cavity of the ventricle, apparently originating from the region of the lamina terminalis, on the

anterior part of the corpus callosum; grayish-pink and friable. On the right side a mass of somewhat greater proportions which is continuous with the outer wall of the ventricle and extends backward into the central portion of the ventricle. There is some increase in the intraventricular fluid. Sections 2 centimetres thick, made at a point 15 centimetres posterior to the tip of the frontal lobes reveal a mass of irregular outline measuring 12 centimetres from before backward, 6 centimetres from side to side, and 5 centimetres from top to bottom; occupies the region of the third ventricle, extending slightly into the left lateral ventricle, into the right lateral ventricle, and backwards along the cavity of the latter to a point corresponding with the anterior border of the right pedunculus cerebri. At the level of the optic chiasm the mass, which has a somewhat pyramidal shape, with the base uppermost, extends downward through the interpeduncular space; this extension corresponds with the mass (above noted) seen upon the base of the brain. The mass on the right side anteriorly is continuous with the outer wall of the lateral ventricle, and with the corpus callosum, which latter in this region it seems to replace at about the middle of the brain, and from there backwards, the corpus callosum lies freely above the mass. The cavity of the left lateral ventricle is distended by the mass which compresses surrounding structures; the corpus callosum is pushed towards the left, the corpus striatum and optic thalmus downwards and outwards. The pressure exerted by the growth is still further evidenced in this region by the flattening of the second and third cranial nerves. The mass lies freely in the mid and posterior portions of the right lateral ventricle, and at no point, except in the anterior part of the ventricle, invades surrounding structures."

Among the symptoms in this case there are three points which are especially worthy of consideration: (1) The recurring neuritis following the atrophy of each disc; (2) the similarity in appearance between neuroretinitis caused by brain tumor and a chronic nephritis; (3) the mildness and indefiniteness of all the symptoms, both ocular and general, as compared with the amount of change in the brain.

The double optic neuritis was first discovered about fifteen months before the death of the patient, and when seen, about one year later at the dispensary, the disease had terminated in a moderately well developed optic nerve atrophy in each eye. Finally, this condition changed again to an active inflammation, so that when the eyes were examined, two days before death, a pronounced neuritis was found, more developed in the left than in the right, but still in an early stage. Recurrence of a neuritis in an atrophied nerve is an extremely rare phenomenon, and I have only been able to find 2 cases reported in the literature. Gowers[1] says that "if a disc has become completely atrophied it is very rarely again the seat of inflammation. In 1 case, however, of a boy, age twelve (under the care of Dr. Hughlings-Jackson), who had double optic atrophy and absolute blindness due to intracranial disease some years previously, distinct double papillitis occurred in the atrophied discs, associated with symptoms of intracranial tumor. When, however, atrophy is partial or absent, in rare cases 2 attacks of neuritis may occur. In 1 case, for instance, a patient suffered without doubt from a cerebral tubercle, and died from an attack of tubercular meningitis. The former had probably become quiescent, and the neuritis which it caused subsided, leaving partial atrophy. The discs again became swollen and obscured with the symptoms of meningitis." It is interesting to note that in his earlier 1879 edition, Gowers says at the beginning of the corresponding paragraph, "if a disc has become completely atrophied it is *never* again the seat of inflammation, etc."

The only other case of this kind that I have found reported is by de Schweinitz and Thomson.[2] The patient, a man, first sought relief from attacks of epilepsy which had begun two years before. A cerebral tumor was suspected. At first there were no abnormal ocular symptoms except passive hyperemia of the retinal vessels and infiltration of the lymph sheaths. One year later there was a distinct congestion of both optic discs. When he was examined again, after still another year had elapsed, a well developed optic neuritis was noted. The vision in each eye was normal, as were also the fields for form and color. An attempt was made to relieve the constant headache by trephining the skull, but this gave only temporary relief. Soon after this operation, a progressive optic nerve atrophy commenced, which developed more rapidly in the left than in the right eye. In each macula there was a degeneration which resembled very closely albuminuric retinitis, but the urine was negative. About one year after the operation, the vision in the right eye was still normal, but in the left $\frac{3}{200}$. At that time a very temporary improvement in the circulation of each papilla was noted. The visual fields and color perception remained normal. Soon afterwards the patient began to have a return of the epileptic attacks as well as headaches, after which his sight began to gradually grow dimmer. The last examination of his eyes was made about three months following the final outbreak of active symptoms. The pupils were dilated, did not react to light or accommodation and there was absolute blindness. The papillæ were enormously swollen (+ 6 dioptres each eye) and both eyes presented a typical picture of optic neuritis. The central degenerative spots in both maculæ were still visible. It is interesting to note that although the papillæ were swollen to + 6 dioptres, the sight did not begin to fail till the subsequent atrophy had commenced.

This case resembles mine in having a neuritis recur after atrophy of both discs, and in the resemblance of the fundus change to retinitis albuminurica.

[1] Medical Ophthalmoscopy, 1890, p. 57.

[2] Arch. Ophthal., 1895, vol. xxiv, No. 2.

These 3 cases of recurring neuritis must not be confused with another kind which is rather more frequently seen. A second attack of neuritis may occur very rarely in cases of albuminuric retinitis, as noted by Uhthaff.[3] Gowers[4] describes a cerebral tumor case in which, after the papillitis subsided, the disc had a normal appearance till shortly before the death of the man, at which time a recurrence of the neuritis was noted. Marked improvement in the patient's general condition accompanied the subsidence of the neuritis.

It is important to note that when this case was first seen at the City Hospital, the changes in the fundi, especially the maculæ, were noted as typical of retinitis albuminurica. It is a fact that the same appearance of neuro-retinitis or neuritis may be caused either by brain tumor or chronic interstial nephritis. Burr[5] in a recent article, draws attention to the possibility of mistaking the cause of either fundus appearance. He cites a few cases of chronic nephritis, causing simple neuritis, which were considered by the oculist to be due to brain tumor. Græfe and Sæmisck[6] say that a papillitis with or without brain tumor may occur and therefore may exactly resemble a neuritis as seen in brain tumor. Wadsworth[7] maintains that the same or very similar fundus changes may be seen in cases of leucocythemia, (probable) meningitis, or diabetes. It seems, therefore, that neither is the stellate figure about the macula typical alone of chronic nephritis, nor is the simple neuritis indicative only of brain tumor. A few cases have been reported by Schmidt and Wegner, Bruns and von Græfe,[8] in which it was conclusively shown that the ophthalmoscopie picture (although practically identical with that seen in retinitis albuminurica) was caused by a cerebral tumor. There was no renal disease in any one of these cases.

The first one, by Schmidt and Wegner, was a woman of twenty-three years who first complained of headache, vomiting, dizziness and gradually failing sight. The fundus of the left eye showed the papilla swollen and red with indistinct edges. A light gray infiltration lying close to the edge of the papilla and also encroaching on it, covered the vessels in part of their course. There were also white spots characteristically arranged and hemorrhages about the macula. In the right eye the papilla had a clearer edge than in the left, but was of a grayish-red color. The veins were tortuous. Diagnosis: Retinitis albuminurica. No cardiac or renal symptoms present. The swelling from the exudates in each papilla increased and the diagnosis was changed to neuroretinitis in each eye. The vision decreased somewhat during this time. Nasal scotomata were found with the perimeter. No albumin was found in the urine at this time, and the physician under whose charge she had been at first, stated that the repeated tests for albumin had always been negative. The post-mortem examination showed a gliosarcoma situated in the left lateral ventricle.

The second one, cited by Bruns,[9] was a man thirty-six years old. There was a neuritis with swollen veins and white spots with hemorrhages distributed all over the retina. It was a typical picture of albuminuric retinitis. No albumin was found in the urine. At the autopsy a tumor of the frontal lobes was found; the kidneys were normal.

The third case was reported by von Græfe.[10] The boy, sixteen years old, was examined by a reliable physician, who made a diagnosis of albuminuric retinitis. A later and more careful examination by von Græfe showed that (1) the white spots were thicker and more confluent about the papilla than in typical Bright's disease; (2) the general swelling of the retinal tissues about the papilla was greater; (3) the papilla showed a steep-sided swelling (although the disc may be involved in Bright's disease, yet it hardly shows, with the opthalmoscope, a marked swelling); (4) the veins were greatly dilated, tortuous, and the papilla thereby was enormously reddened. There was no albumin and no renal symptoms. The tumor symptoms, in addition to the cardinal ones, included epileptic attacks, noises in the head, finally contractures of the neck muscles and sleepiness. Vischow found at the autopsy a medium-sized myxoma on the posterior border of the convexity of the right hemisphere.

It is surprising to note, in the present case, how indefinite and mild the clinical symptoms were, when one considers the great size of the tumor. A large part of the corpus callosum was totally destroyed, and the apex of the new growth appeared in the interpeduncular space, where it compressed the second and third cranial nerves. The only effect on the third nerve was to irritate it sufficiently to cause a temporary dilatation of the left pupil. There was no paralysis of the eye muscles.

[3] Uhthaff in Norris and Oliver's System, p. 595.
[4] Med. Ophthal., 1879, p. 267, case 15.
[5] Philadelphia Medical Journal, 1898, No. 6, p. 254.
[6] Handbuch, p. 578.
[7] Boston City Hospital, medical and surgical reports 1877, series II, p. 92.
[8] Archiv., Bd. xv, 2, S. 253.
[9] Deutsch. med. Woch., 1892, No. 7.
[10] Archiv., Bd. xii, 2, S. 120.

Clinical Department.

A CASE OF ACCIDENTAL INOCULATION OF CANCER IN A FRESH WOUND.

BY A. T. CABOT, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

At this time, when the investigation of cancerous disease is being pushed so earnestly, it is important to publish all facts which may throw light upon the etiology of the disease. The following case is presented as an instance of auto-inoculation of cancer. The case has been already published and a description of the operation has been given in a former article. Of this, only so much will be repeated here as is necessary to make plain the evidence proving this to be really a case of auto-inoculation.

The patient was a man of fifty-nine, with a cancer high up on the anterior wall of the rectum. An opening was made through a Kraske incision into the rectum posteriorly. The cancer was dragged down into this opening, and removed through it. During this manipulation the cauliflower-like juicy growth was rubbed about in close contact with the wound made by the Kraske operation.

All this occurred in March, 1897. The tumor removed was hardened and subjected to a careful microscopial examination by Dr. J. H. Wright, and was shown to be an adenocarcinoma.

I will at once state that up to this time (January, 1901,) there has been no sign of recurrence of the growth at its original site in the anterior rectal wall. The scar left by its removal is soft and covered by smooth mucous membrane.

Two months after the first operation a second operation was done for the closure of the posterior opening in the rectum. This was effected by refreshing the edges of the opening, and then closing it by layers of buried catgut stitches. The first row approximated the rectal wall, the second drew together the muscles and connective tissue posterior to the rectum, and a final row of silkworm gut stitches closed the skin. Healing occurred by first intention, and the patient remained well until the summer of 1899.

At this time his physician, Dr. E. H. Stevens, noticed a hardening of the tissues behind the rectum, and I was called and concurred in his belief that a recurrence of the disease had occurred in that situation. On July 14, 1899, I operated for the removal of the mass which was about as large as a hen's egg, flattened in the anteroposterior diameter and extended from the mucous membrane of the rectum, backward, along the sacrum to which it was firmly attached. This mass was cut out with a liberal margin of, seemingly, healthy tissue about it, including so much of the rectal wall as seemed to be attached to it. The mucosa, thus removed, looked healthy. The mass which was removed was sent to Dr. J. H. Wright for examination and his report was as follows:

The specimen consists of a mass of tissue of about the size of a mandarin orange. It is made up of muscle, fat, some bone and an irregular tumor, about the size of a pigeon's egg, to which at one point a small patch of rectal mucous membrane, about 1 c.m. in diameter, is adherent. On section, the tumor presents a fibrous, trabecular structure supporting a gelatinous, translucent material. Microscopial examination of a section of the tumor, about 23 mm. in greatest diameter, shows the following:

The main mass of the section is composed of a connective tissue stroma supporting tubules formed of columnar epithelium and small cystic structures lined, in many instances, with a single layer of columnar epithelium. In some instances the epithelium is absent. The cystic structures are regarded as dilated tubules. The largest of them is about 3 mm. in greatest diameter. Most of them, as well as some of the tubular structures, contain a reticulated coagulum which is evidently mucoid in character.

The tubular structures often appear to branch. The usual goblet cells, so characteristic of the mucous membrane of the rectum, are absent from the cells lining these tubules.

The small patch of rectal mucous membrane mentioned above is continuous with the atypical tissue just described, but no transition is apparent between the characteristic tubules of the rectal mucous membrane and the atypical tubules of the new growth, for at one point there is an abrupt change in the character of the tubules.

Diagnosis. — Adenocarcinoma with colloid degeneration.

Since this operation Dr. Stevens has, on two occasions, cut out little bits of hardened tissue in the scar. Microscopial examination in each case showed the bit removed to be only a mass of fibrous tissue. (Keloid.) The scar in which the recurrence took place was separated by an interval of 5 or 6 inches from the original seat of the growth, and the tissues between have remained wholly healthy. This is plainly, therefore, not a case of direct extension of the disease. The lymphatic vessels from the seat of the original disease run upward to the lumbar glands, not downward toward the point of recurrence. This anatomical relation, together with the absence of any lymphatic structure in the recurrent nodule remove any suspicion of this having been a secondary growth in a gland. We are then obliged to believe that this was, indeed, a case of transplantation of cancer. Certainly, the conditions were favorable for this happening as the cancer, torn and squeezed by forceps, was rubbed for several minutes into the fresh wound.

This experience emphasizes the importance of taking great care during the removal of a cancerous growth to go wide of the disease so as to avoid the possibility of inoculation. This is a precaution long observed by many surgeons, but, perhaps, not sufficiently dwelt upon in surgical teaching. It is interesting, also, to note in this case that the antiseptics used to cleanse this wound, which by its contiguity to the rectum was consciously infected, did not suffice to prevent the survival and growth of the cancer elements.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, February 8, 1901, DR. C. B. PORTER in the chair.

DR. JAMES C. WHITE showed

A CASE OF ICHTHYOSIS IN A BOY FOUR YEARS OLD.

This is a very well developed case indeed, and it is interesting, by contrast with the other series of cases I shall show, as an affection of the epidermis and the papillary layers of the skin which begins in the first year or two of life, and remains permanently through life like those, becoming aggravated as years go on, but never undergoing any secondary changes. The other affection, xeroderma pigmentosum, begins at the same time in life, consists also of epidermal and pigmentary changes, and goes on to most disastrous results, as you know. You will please note the rough, harsh,

shagreen condition of the skin in the ichthyotic patient with the great formation of colored epidermis, an unusual feature in a child at this stage of development of the disease; also that the skin in flexures of the limbs remains normal.

CASES OF XERODERMA PIGMENTOSUM.

This first child is one of the two little sisters whom you have seen before. They have red hair and light eyes. The disease began with them, as is usual, within the first two years of life. This case has been operated upon many times for the removal of keratosic new growths and epitheliomatous transformations upon the face and hands. It is interesting now because she has had eight or ten exposures to Röentgen rays upon the central portion of the face, thus far without apparent effect. The other sister died last summer at Deer Island of the same affection, with tremendous carcinomatous destruction of the face. The hyperpigmentation extends all over the body, but the keratoses and the epitheliomatous transformations are confined to the face and hands in the survivor.

These other two cases of the affection I saw first fifteen years ago. They are dark brunettes of Northern Russia. When I saw this younger boy (now eighteen) he was two years old. The disease had begun with him a few months previously, consisting of very slight freckling. The elder brother, now thirty-two years old, was at that time a well marked example of the three primary changes, namely, the freckling, that is, the pigmentary hypertrophy, the telangiectalic new growth, and the atrophic condition of the skin. They were the only changes that this case had exhibited up to within a year, in which respect this is almost an unparalleled case. Now for the first time, within the last six months, there begins to develop the inevitable change of an epitheliomatous character in the form of a large fungating outgrowth on his side chest.

The younger brother has on his face here and there slight keratoses, but there has been as yet no epitheliomatous transformation, nor does he exhibit to so generalized a degree as his older brother the primary changes. For instance, the pigmentation does not extend below the nipple, whereas it is continuous over the other with much greater development of the telangiectalic new growths and of the atrophic condition which you see, especially on the face and ears.

I have asked these three cases to come in this evening because they illustrate, in the first place, an extraordinarily early development on the part of the little girls, the red-haired children, of the later destructive transformations with a fatal termination in one of them, and a rapid degeneration of tissue in the other, on the one hand, and in the case of the black ones how long they have resisted any tendency to the formation of keratoses and any secondary transformations. In the young man thirty-two years old it is almost unprecedented that the disease has gone so long without any such secondary tissue changes, for the disease does undergo this transformation in all cases, and a lethal termination is always present; in other words, the prognosis is inevitable.

Now, it seems to me that the progressive process in this affection is wholly militant against the opinion that carcinoma or epithelioma is a parasitic affection. If it be parasitic it is of extraneous origin, because these are not congenital cases, nor do we assume that any such forms of parasitic disease are ever congenital, born with the child that is, and yet we can predict absolutely that eventually these cases are going to develop epithelioma. Now, it is not according to the doctrine of chances that, if this be a parasitic affection, in every one of the hundred cases on record these germs from without are going to be present and strike them. On the other hand, we can predict absolutely that in the child with ichthyosis, which is a very common disease, comparatively speaking, with keratosic tissue changes of the skin there will never be any carcinomatous transformation.

MYXEDEMA.

Dr. R. H. Fitz showed a patient whose symptoms and signs were best explained by the diagnosis of myxedema, although in certain respects the course of the disease differs from the generally recognized characteristic features of this malady.

The patient is a shoemaker, forty-one years of age and unmarried. There is no venereal history, but he admits the frequent use of beer, sometimes in large quantities. Before the age of twelve, he had suffered from measles, variola and typhoid fever. Several ribs had been broken and abscesses had been formed in the right side of the neck. He is of powerful build, and has weighed 212 pounds. When twenty years old he could run 220 yards in twenty-five seconds without preparatory training.

Four years ago he noticed that he could no longer work at his trade as rapidly as before, and two years ago gave up his place on account of increasing sluggishness of action. His feet and hands were numb and his legs felt heavy. At this time his friends noticed that his face appeared swollen and his skin was rough. Although his movements were slow and his muscles were easily fatigued, his mind became excitable. He was sensitive to slight draughts of air and sweated easily. During the past eighteen months he has suffered a considerable loss of hair. His weight has diminished about 40 pounds during the past three years.

At present the face appears moderately swollen and its lineaments are largely obliterated. It is pale except over the cheek bones, where are persistent red patches, due to capillary and venous dilatation. The hair is thin and dry and the scalp is partly bald. The eyebrows are unaffected, but the axillary hairs are few. There are no supiaclavicular swellings but there are enlarged lymph-glands, some fluctuant in the right side of the neck. There is no appreciable alteration of the thyroid gland. The skin of the arms and legs is cool, dry and scaly, but the sweat gland in the

axillæ secrete freely. The nails of both fingers and toes are normal in appearance. The edge of the tongue is indented by the teeth, several of which, especially of the upper jaw, are lacking. The mind seems alert, but speech is slow and deliberate. The pulse is between 50 and 60 beats per minute and the temperature is subnormal. The urine contains a trace of albumin, and the examination of the blood shows a slight degree of anemia. The knee jerks are feeble, cutaneous sensibility is but little disturbed, and the difference between heat and cold is readily recognized.

Two days after his admission to the hospital he became so suspicious of his surroundings, that he left the ward at night and was found by the police wandering about in his night shirt. His delirium resembled that caused by alcohol.

Although the physiognomy of this patient, the sluggishness of speech and action, the loss of hair, the condition of the skin, the slow pulse and subnormal temperature, are indicative of myxedema, the condition of the mind, especially the active delusion and the sweating, is unusual. Despite these deviations from the type of the disease, the diagnosis is strengthened by the rapid improvement that is following the use of thyroid extract.

DR. ARTHUR T. CABOT showed the

PHOTOGRAPH OF AN ARTIFICIAL ANUS FOLLOWING A KRASKE'S OPERATION FOR CANCER OF THE RECTUM.

The patient, a middle-aged woman, had been operated upon a year ago for an extensive malignant tumor of the rectum. Five or six inches of the lower part of the bowel was removed, and the end was brought out at the side of the sacrum where the coccyx had been cut away. The patient now has almost perfect control of the bowels. The opening is small, just admitting the forefinger, and the finger introduced into this opening as it reaches the back of the uterus passes through a narrow place in the bowel and is grasped as by a sphincter. This narrow point is easily passed by the finger, but it seems as if some of the circular fibres of the bowel had taken on more or less sphincter action.

The case was introduced to show how satisfactory the final results accomplished by this operation may be. It might be expected, and is usually supposed, that an artificial opening of this sort would be extremely troublesome, but that it is not necessarily so, this case attests.

DR. ARTHUR T. CABOT reported an observation on the

INOCULATION OF CANCER IN A FRESH WOUND.[1]

DR. H. F. VICKERY showed a

CASE OF ELEPHANTIASIS.

The first case is one of elephantiasis of moderate degree in a mulatto woman who was born in South Carolina, and was seventeen years old when she entered the wards last September. She came in on account of symptoms which were easily explained by a marked chlorosis which she had, the hemoglobin being only 50% of normal; but the object of interest to us was her right leg, below the knee and including part of the foot. The leg was symmetrically enlarged; the hair follicles somewhat farther apart than on the normal leg, and the hairs rather more luxuriant. The enlargement was apparently due to hypertrophy of the skin and the subjacent connective tissue. The x-ray showed no difference in the bones. The case was seen by Dr. Bowen for the department of the skin, and Drs. Walton and Lord representing the nervous room. Dr. Bowen thought that it was a sort of elephantiasis. The nervous specialists did not think that it belonged in their department.

True elephantiasis of tropical origin is due to the presence of the filaria sanguinis nocturna, although the filaria cannot, as a rule, be found in the general circulation in these cases, being confined by the choking up of the lymph glands of the diseased part with the eggs of the filaria. Repeatedly the blood of this patient was examined day and night, both from the leg and from other parts, but no filaria was discovered. Different from ordinary elephantiasis, again, is the fact that she never had any erysipelatous attacks in the leg. This leg measured the same size as both her thighs, nearly 41 centimetres.

TRICHINOSIS.

I should like to speak briefly of 2 cases of trichinosis: 1 that occurred in my own service, and another later in that of Dr. Shattuck, which I report by his permission. The interest of my own case was the degree of fever, which reached 104° F., associated with a slow pulse and an enlarged spleen just as in typhoid. The pulse ranged from 100 to 105. This patient came in in typhoid fever times, the 6th of September. A man, twenty-two, born in Boston and fond of eating pork. The story was that two weeks before entrance he began to notice soreness in the muscles of the arm and leg so that it pained him to bend them; the joints were not affected. Soon he began to feel tired; sleep did him no good. Contrary to what might have been expected in trichinosis, there had been no vomiting or diarrhea. His face was somewhat puffy when he entered. The diagnosis was not made until the blood was examined, when the presence of an immense number of eosinophiles at once put us on the right track. A piece of the gastrocnemius being removed displayed the trichinæ, not calcified, lying in a somewhat inflamed tissue. The number of white cells at one count was 25,000, and of these 29% were eosinophiles compared with perhaps 2% to 4% as the normal maximum.

Dr. Shattuck's case of trichinosis was in a young woman from Ireland, twenty-three years old, who had only been in this country two and a half months. A week before entrance the muscles of the arms and legs became sore; there was no swelling or redness of joints; she felt weak; the bowels were constipated; she vomited every day.

[1] See page 471 of the Journal.

She had a moderate fever of about 102° F. and the same characteristic blood count. Trichinæ were found in the muscle. One thing was noticed in her case which is said to be characteristic of the disease, a marked variation in the number of eosinophiles. On the 17th of November there were 23%; on the 19th only 7%; on the 22d there were 37%. At the time when they were reduced to 7% the white corpuscles were also reduced in total number down to 10,000; so that if we are unfortunate enough to hit just a certain time, even with trichinosis present, there may be a very moderate eosinophilia. This case presented no enlargement of the spleen.

Dr. White: It seems to me, Mr. Chairman, that the first case is one rather of false than true elephantiasis due to the presence of filaria. The occurrence in the early stages of the latter of attacks of erysipelas-like dermatitis are almost constant, and I was not aware until the reader so stated that this filaria is found as far north as South Carolina. These sporadic cases which occur in northern regions are looked upon rather as non-parasitic, and are called false elephantiasis on that account, due to some condition of the lymph vessels, not a mechanical stoppage by the filaria, but to other processes which lead to precisely the same results.

Dr. J. W. Elliot demonstrated a

CASE OF STONE IN THE URETER LOCATED BY THE X-RAY.

The patient is a woman, married, thirty years old; had been operated on in 1898 by Dr. Harrington for gallstones; again in 1899 for stricture of the pylorus; and again for adhesions about the stomach. Sixteen days before entrance she had a severe attack of pain in the right kidney region extending down in the leg, requiring a grain of morphia. The next day she passed bright red blood in the urine. Since then several similar attacks of pain; with each attack bright red blood came in the urine. The urine showed a slight amount of albumin, was brownish in color; the sediment contained pus and blood. The attack she had here was very severe. She was evidently losing ground rapidly, and the operation was done at once in spite of her poor condition, on account of the collapse which was evidently due to some disturbance of the kidneys.

The x-ray showed a stone in the right ureter just above the crest of the ilium. It was a very useful shadow for the patient, in that, although I knew the stone must be in the ureter because the blood was so bright, yet I could not have located it at all; should have been obliged to strip up the ureter to find the stone, in fact, I could not have been sure it was not in the kidney. I found the stone exactly as it appeared in the skiagraph. I exposed the kidney and ureter by a curved incision in the loin, retracted the peritonium and the abdominal contents toward the median line. The ureter was seen much enlarged for a distance of two inches below the kidney. At the lower extremity of this enlargement I felt the stone and easily removed it, closing the ureter with several fine silk stitches. The stitches have held well, and there has been no leakage of urine through the wound.

According to Leonard, 6 cases of stone have been located in the ureter by the x-ray. He states that it is very valuable and very accurate when the proper technique is used, and that a negative shadow is also of great value, and, certainly, when I felt this stone, it was so exactly where the x-ray showed it, that I made very little further search, trusting to the x-ray, as it had been so plain and so accurate I did not put a sound down the ureter as I should otherwise have done. That saved getting urine into the wound. I did, however, feel of the kidney and pelvis of the kidney very carefully, because one naturally expects to find other stones in the kidney, but nothing was felt.

PROSTATECTOMY BY THE COMBINED METHOD. (ALEXANDER.)

These are fragments of a prostate from the prostatic urethra removed by a comparatively new method, the combined method, as described by Dr. Alexander, of New York. This was a chronic prostatic patient who was sixty-eight years old. He had had to pass his water four or five times at night for three or four years and came in with retention. Since his retention, has passed his water every half hour. On examination by rectum the enlarged prostate appeared to be rather low down, the disease seemed to be principally in the region of the prostatic urethra, there being no large lateral lobes extending up beside the bladder, so that I thought it was a case particularly adapted to this method. The method is that you open the bladder by a suprapubic opening, put one or two fingers in, push the prostate down, then you make a perineal opening, by an external urethrotomy, opening up to the prostate, lower end; then, by bearing one hand down from above, pass the other hand in through the perineal opening and begin to shell it out.

The urethral opening in the bladder was surrounded by a very thick, round, hard, raised ring, so that there was a deep "bas fond" of the bladder. Putting my hand inside to push that down I felt that the prostate was wholly in the prostatic urethra, and I shelled out first one side and then the other, and tore it away from the prostatic urethra without opening the bladder at all and without opening the prostatic urethra at all. At the end of the operation I felt satisfied that I had removed all of the prostate and that there could be no further obstruction to the flow of the urine.

Dr. Elliot, in answer to a question by Dr. Harrington in regard to his impression of the case or difficulty of the Alexander operation, said: "I got a favorable impression of the operation itself." Every one who has done the operation likes the mechanical part of it. The question is, whether the mortality will be high. Dr. Alexander has reported 32 cases with 3 deaths, I think. In one year I did 8 cases of suprapubic prosta-

tectomy with 1 death. But the Alexander operation seems to me a much better operation, much more complete. I felt I got all of the prostate out. In all those other operations done by the suprapubic method I could not get down into the prostatic urethra far enough so that I felt that I had cleaned out all the prostatic enlargement. In this case there was not a bit of the obstruction left anywhere. Dr. Alexander does the operation very quickly. It seems to me wise to take plenty of time as it is not a long operation. There was not much hemorrhage, no more than in the ordinary perineal section. What surprised me was, that I got out the entire prostate without opening the bladder. The prostatic urethra was not injured.

DR. ARTHUR T. CABOT said that in the only case of stone in the middle portion of the ureter for which he had operated, long before the x-rays were used for the detection of these calculi, the location of the stone was easily and exactly made out by the point of greatest tenderness. The patient in his case had suffered extremely from pain, having been kept under ether for twenty-four hours before Dr. Cabot saw him, with but short intervals of consciousness. He said that in that case he did not sew up the ureter and yet the wound healed quickly without trouble. He expressed a fear that in sewing up the ureter, especially when silk was used for that purpose, there was a danger, in case the slightest leakage of the urine occurred, that the stitches would act as a nucleus for stone formation, and considering the fact that longitudinal incisions in ducts of this sort heal readily without suturing, it seemed to him perhaps better not to apply stitches.

DR. ELLIOT: I did not intend to put any of my stitches into the mucous membrane of the ureter. The ureter was pretty thick and very easy to sew. I might have got some in, but did not intend to put them in.

One interesting thing in this plate was that when it was fresh you could see the shadow of the ureter for about an inch and a half above the stone and you could not see any other part of the ureter. I thought there might be a deposit of lime, but found none. I do not know now why there was a shadow of the ureter just above that.

DR. JACKSON exhibited some x-ray plates of multiple calculi of the right kindey. The patient, a man of twenty-five, had been operated on five years ago by Mr. Bennet, of London, and a large calculi removed from the right kidney, the nature of which is not known. Two years ago symptoms of calculus returned and an x-ray plate showed four stones very distinctly. From Professor Wood's analysis of the urine it was evident that a marked pyelitis was present, and it was decided that the calculi were in all probability made up of urates which would correspond with the results obtained by the x-ray. The case is interesting also on account of the good results obtained by medication. For a year the patient had diuretics of various kinds without any effect either on his symptoms or the calculi. He then took lycetol (Bayer), 5 grains 3 times a day for six months. Within three months the symptoms and pain had disappeared and the pyelitis had nearly cleared up. At the end of six months the x-ray showed that two stones had disappeared. The dose of lycetol was then diminished to 5 grains once a day, which was continued for about six months longer. The last x-ray plate showed a very faint shadow where one of the stones had been. The patient feels perfectly well and the urine is now practically normal.

(To be continued.)

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 19, p. 454.)

THE ILEOCECAL ORIFICE AND ITS BEARING ON CHRONIC CONSTIPATION, WITH REPORT OF TWO CASES RELIEVED BY OPERATION.

WILLIAM J. MAYO[13] has operated upon 2 cases, excising a portion of the cecum, after the Heincke-Mikulicz pyloroplasty, making a considerable increase in the size of the aperture between the ileum and cecum. The literature bearing on this subject as to the function of the ileocecal valve is not large, and Mayo believes that one of the many functions of the ileocecal opening is to prevent the too rapid emptying of the small bowel and to maintain some pressure against peristalsis until the process of small bowel digestion is properly completed. His operation is a suggestive one, and it is possible that it might be practicable in selected cases.

RESULTS OF RADICAL OPERATION FOR CANCER OF THE RECTUM.

Kröchlein[14] has investigated a series of 881 cases of excision of the rectum in order to ascertain: (1) The rate of mortality; (2) the recurrence facts; (3) the functional result, incontinence. Eighty per cent. are reported curative. In 14% it is stated to be permanent. The best functional results are obtained when the resected gut is fixed at its normal site and the sphincter and anus are preserved. The perineal method is suitable in some cases. The sacral is best suited for high seated cancer.

Kraske states that he has obtained satisfactory results in 120 cases by the sacral method. Also that the combined abdominal sacral method is a more radical one. The abdomen is opened, the superior hemorrhoidal artery is tied in order to permit a bloodless section of the peritoneal cavity of the bowel. The mesocolon and mesorectum with their glands are removed. The usual sacral operation is then done.

Hochenegg emphasized the necessity of preservation of the sphincter if incontinence is to be avoided. He recommends denuding the retained

[13] Annals of Surgery, September, 1900, p. 364.
[14] Verhand. d. Deutsch. Gesellsch. f. Chir., xxix, Congress.

anal segment of its mucous membrane and anchoring the proximal segment of the bowel in its grasp.

Wölfler attributes the failure to avoid incontinence to the disturbed innervation of the tissues involved in the operation.

OMENTAL FIXATION FOR RELIEF OF ASCITES FROM HEPATIC CIRRHOSIS.

M. M. Kusnetzow has attempted to ascertain how far the blood circulation in the region of the portal vessels is improved by newly formed adhesion in the abdominal cavity and by omental fixation, and in what manner the portal vessels anastomose with the inferior vena cava. In dogs he found by injection the following anastomoses: (1) Numerous anastomoses between the veins of the stomach wall which empty into the superior gastric vein and those which empty into the large vein along the greater curvature; (2) a direct connection between the vena gastro duodenalis and duodeno-jejunalis. Also an anastomosis between these two and the portal vein trunk through the pancreatic veins; (3) anastomoses between the neighboring veins which on one side open into the large, on the other into the small mesenteric veins.

These anastomoses permit the passage of the blood in case of ligature of the portal vein from the portion below to that above a ligature of the portal vein.

In his experiments Kusnetzow fully ligated the peripheral branches of the portal vein: (1) The superior mesenteric vein; (2) the inferior mesenteric vein; (3) the different branches of the same simultaneously. Also he ligated the trunk of the portal vein either fully or so that its lumen was diminished one-half to one-third. Each dog was operated upon two to three times. At the first operation the abdomen was opened and the omental fixation made. At the second a mesenteric vein or the peripheral portion of the portal vein was ligated. At the third the main trunk of the portal vein near the liver was ligated. Of fifteen dogs one died. Some were killed and examined one to three months after the operation, and the injected veins examined. The conclusions formed from the conditions found have convinced Kusnetzow that the treatment of ascites due to impeded portal circulation by omental fixation can give good results: (1) That Talma's operation is preferable to De la gé mèrés since it gives better conditions for the collateral circulation; (2) that without previous omental fixation complete ligation of the portal vein rapidly causes death; (3) that omental fixation enables animals to bear a double ligation of the portal vein; namely, a complete one in its middle part (above the entrance of the gastrolienalis) and an incomplete one near its entrance to the liver; (4) complete ligation below the vena gastrolienalis caused death in a few hours even after previous omental fixation; (5) the incomplete ligation of the portal vein in its middle portion caused stasis ascites and bloody diarrhea which was transitory as in 3; (6) the superficial epigastric veins dilate markedly after omental fixation resembling the "caput medusæ" seen with hepatic cirrhosis.

Also the veins of the great omentum soon communicate with the veins of the abdominal wall and the superficial epigastric vessels. Then the blood flows from the portal vein through the gastrolienalis into the omental veins, then into the epigastrics, the femorals, intercostals and mammary vessels. Also a direct anastomosis between the portal system and the inferior vena cava is formed by the dilatation of previously existing very small vessels showing that there is normally a slight communication between the portal system and the vena cava as Sappy has stated. This is best shown by injecting the vena cava and the portal vein with different colored injection. Adhesions and connective tissue bands formed in the abdomen after laparotomies contain many small vessels which can serve to form anastomoses between the vena cava and the portal vein. In case of ligature of the portal vein one should consider the normal anastomoses between the different branches of the portal vein which facilitate the formation of new blood channels. The details of the experiments are not given in the report at hand,[15] which is a preliminary one.

It is unfortunately not stated if the above conclusions are based on the venous anatomy of dogs or in the human venous system. Further reports on this subject will be awaited with interest.

WHEN SHALL WE OPERATE IN CHOLELITHIASIS?

Kocher,[16] in answering this question, says: The indication is given by the recurrence of gallstone colic attacks, which show the presence of multiple calculi or of one that is so large that it cannot pass through the bile ducts, or can do so only with great injury to them, or, finally, where a newly-formed calculus is passed. When any of these indications are present we should not wait until secondary changes have occurred, and inflammation, with its sequelæ and even perforation, may have taken place, or malignant degeneration has occcurred; then recovery is seldom seen.

Is intervention indicated in cases where recovery from the attack is probable and there are no complications? He believes that operation gives the best chance, and is indicated. Simple cholecystotomy is rapidly recovered from, and with perfect technique there is no great danger, and not nearly as much as from the complications that arise from a further development of the disease or the presence of infection. The early operation may remove a great number of calculi, and the ten days required for operation and recovery are well spared when compared with the consequences of repeated attacks.

The ideal cholecystotomy consists in exposing the gall bladder, opening it, and removing all calculi. It should then be immediately sutured and returned to the abdomen. Such an operation requires absolute asepsis and a perfect suture. The

[15] Contrbl. f. Chir., 1901, Bd. xxviii, S. 105.
[16] Correspondenzbl. f. Schweiz. Aertze, April 1, 1900; American Journal of the Medical Sciences, August, 1900.

best suture this author believes to be silk. It is inserted only in the wall of the bladder and does not enter the cavity, so the danger of its forming nuclei for other calculi is entirely avoided.

Kocher has performed this operation six times during the winter semester. All the patients recovered, without rise of temperature, in eight days, and were sent home in two weeks' time. This illustrates the simplicity of operation at this early period as soon as the diagnosis is established and before complications have rendered the intervention more hazardous.

He does not believe that any form of medical treatment can remove these calculi or prevent the patient from having recurrent attacks until the calculi are removed. Recurrence is not probable after all the calculi are removed, but the patient should be put upon a regulated diet, with the end in view of preventing the formation of other calculi.

OPERATIVE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

Hahn[17] rejects in all cases where this lesion is the probable diagnosis the present commonly employed "symptomatic" and "expectant" treatment. Also all radical, extensive or severe operative treatment. He recommends only a small incision below the navel in the median line to remove the exudation and for drainage.

He gives as characteristic symptoms the sudden, unusually severe epigastric pain, violent eructations, biliary vomiting, constipation, distension, especially epigastric, tenderness, severe collapse, (cool extremities, face, etc.), subnormal temperature, pulse increased even to 160. Death in four or five days. In all his cases these symptoms were more or less pronounced.

PANCREATIC SURGERY.

Ceccherelli[18] summarizes his views on pancreatic surgery under the following headings:

(1) Surgical operations on the pancreas are involved directly in all the questions regarding the functions of this gland.

(2) The loss of flesh, the presence of fat in the feces, sugar in the urine, bronze discoloration of the skin, icterus and pains, are the symptoms which accompany the majority of pancreatic disorders.

(3) Considerable difficulty is encountered in performing complete extirpation. The anatomical conditions are unfavorable; the organ is deeply situated and intimately connected to other viscera. It is very rich in blood vessels and nerves, and secretes an important digestive ferment.

(4) The surgery of the pancreas has not kept pace with the advance in other fields of abdominal surgery. The diagnosis of these conditions is difficult, and is generally arrived at too late for successful operation. It has been shown, however, that operations on the extremity of the pancreas are more often indicated than upon the head.

(5) Although experimentation has shown that animals live after complete extirpation, clinical experience has not as yet confirmed this result. Cases are usually malignant and die from the disease before the effect of the operation in removing the pancreas can be noted. In other conditions partial operations are indicated, and should leave behind one of the canals if its outlet can be preserved.

(6) The tumors most frequently found in the pancreas are cystic, hematic due to traumatism or apoplexy, or retention or hydatid cysts. In these cases intervention is justifiable, but removal of the sac is all that is necessary. In operating, if possible, the wall of the sac should be sutured into the abdominal wound, or, if impossible, the suturing of the cavity should preclude infection of the peritoneum.

(7) Calculi of the pancreas can be readily extracted.

(8) In necrosis the necrosed portion should be removed.

(9) In suppurative or gangrenous pancreatitis the acute period should be left alone. In case of abscess of the pancreas the entrance can be either lumbar, extraperitoneal, or transpleural, or through the median line above the umbilicus. It is sometimes necessary to remove a portion of the necrosed pancreas.

(10) Chronic pancreatitis may constrict the ductus choledochus or the pylorus. The operation is then not on the pancreas, but to relieve the constrictions.

(11) Herniæ and wounds are treated on general principles. A displaced pancreas may be sutured in position. Injuries of the ducts or their occlusion may require the formation of a new duct or a pancreatic fistula.

(12) Sutures through the substance of the pancreas do not interfere with its function. In suturing the canals the sutures should be close together and should not enter its lumen.

(13) In removing the pancreas the ligatures should be applied before the incisions are made, to prevent hemorrhage.

(To be continued.)

[17] Wien. med. Presse, 1900, Bd. xli, S. 2,391.
[18] Thirteenth International Medical Congress Résumé, Paris, August, 1900.

Recent Literature.

Tuberculosis as a Disease of the Masses and How to Combat It. By S. A. KNOPF, M.D. New York: M. Firestack. 1901.

IN presenting to the public the translation of his prize essay upon "Tuberculosis as a Disease of the Masses and How to Combat It," written for the Berlin International Congress in May, 1899, Doctor Knopf has added another valuable work to the literature upon the subject.

With a full knowledge of the subject, especially of the sanatorium treatment of phthisis, he has succeeded in making a concise, yet thorough work, which is instructive not only to the practising physician but to the laity as well.

The fact that the essay was awarded the prize among eighty-one competitors, after three trials, the judgment being given finally by Doctors Fränkel, Gerhardt, Harms, Köhler and Pannwitz, would in itself speak for the value of the work. The reader will, we believe, think this decision justified.

In his "Preface to the English Translation," the author speaks of certain necessary changes which have to be made in his suggestions to suit the different social conditions existing in Germany and America. He cites the fact that while in Germany every laboring man and woman must be insured against old age, accident and disease, including tuberculosis, and the employer is held responsible for compliance with this law, no such law exists in America, where no insurance company will insure a tuberculous person.

In America, moreover, each State has its own sanitary laws, while in Germany there is one homogeneous law for the whole country, a national institution, which is a consummation devoutly to be wished for in the United States.

It would be impossible here to review in detail the different chapters. Suffice it to say that the author, while believing thoroughly in the communicability of the disease, yet holds a conservative and rational view of the dangers of infection where certain simple, but rigid precautions are taken.

There are excellent words of advice in the matter of hygiene, methods of dress, gymnastics, etc.

The author touches but lightly in this work upon the subject of sanatorium treatment, having gone exhaustively into these matters in previous works, but gives a few short, well-illustrated chapters of the steady growth of this modern method of treatment, and also of the comparatively simple methods of fresh air treatment in the homes of the poor when removal to a sanatorium is impossible.

Doctor Knopf has on many occasions strongly emphasized the necessity of model tenement houses for poor people and of the importance of legislation preventing the erection of any unsanitary buildings for this purpose. In this work he also emphasizes these ideas in connection with the suggestions for the establishment of various kinds of institutions for the reception of tuberculous patients.

In his closing chapter the author speaks of these suggestions as follows: (1) Centrally located reception hospitals and dispensaries for the treatment of ambulant tuberculous patients whose admission to a sanatorium is impracticable for any cause; (2) one or several city sanatoria located in the outskirts where purer air can be obtained as a temporary sojourn for patients before being sent to a mountain sanatorium and where advanced cases could be retained; (3) one or more mountain sanatoria for the incipient cases; (4) seaside sanatoria for children with scrofulous or tuberculous tendencies; (5) maternity sanatoria where tuberculous mothers could be instructed in matters of hygiene for themselves and their children.

The essay has several excellent illustrations and will make a valuable addition to any physician's library.

Chronic Urethritis of Gonococcic Origin. By J. DE KEERSMAECKER, Chief of Service, Diseases of the Urinary Organs at the Centraalklinik, of Antwerp, and J. VERHOOGEN, Agrégé at the University of Brussels; Chief of Service, Diseases of the Urinary Organs at the Polyclinique Libre. Translated and edited, with notes, by LUDWIG WEISS, M.D., Attending Physician to the Genito-Urinary and Skin Service, German Poliklinik; Dermatologist to the Hebrew Orphan Asylum, New York, etc. New York: William Wood & Co. 1901.

This is a book of 251 pages and a sufficient index. The pages contain a good many conventional illustrations, chiefly of the instruments used in the treatment of chronic urethritis, and they also contain 15 colored figures illustrating normal and pathological conditions of the male urethra as seen through the endoscopic tube. Oberlænder's preface to the original edition of the book (1897) as well as the translator's short preface to the present volume precedes the text proper, which is divided into three parts. The first of these is devoted to the anatomy and pathology of the male urethra, the second to diagnosis, and the third to the treatment of the disease to which the book is for the most part devoted.

The volume is a very complete résumé of our present-day knowledge of the diagnosis and treatment of chronic gonorrheal urethritis in the male. It is very clearly and carefully written, and the completeness with which each little detail of treatment is considered, makes the book of real practical value to any one who wishes to embark upon a study of this disease. With the editor's motive in translating the book we cannot, however, feel in sympathy. He says in his preface that "he feels that his attempt to make urethroscopy available to the general practitioner, and acquaint his American confères with so useful a department of our science, may not be in vain." If our experience counts for anything, a little knowledge of urethroscopy is indeed a dangerous thing. A proper skill in the use of the urethroscope is to be obtained only by those who have constant and exceptional opportunities for acquainting themselves with it and with the disease in the diagnosis and treatment of which it can be so useful. Such opportunities, and the leisure to take advantage of them, must rarely present themselves to the general practitioner of medicine, and the wisdom of encouraging him to acquire an inadequate knowledge of and skill in the use of the urethroscope, may very properly be questioned.

Towards the end of the volume the editor has added a chapter entitled Chronic Gonorrhea and Marriage, in which he takes sides with those who believe that the gonococcus is the sole responsible cause of the disease. He concludes the chapter as follows: "We take the stand that we will give permission to marry to those having had gonor-

rhea, when, after repeated and careful microscopic examinations of slide specimens and exhaustive bacteriologic and microscopic investigation of the threads and the secretions of the prostate and seminal vesicles, done under the strictest rules and with the aid of Gram's method, the presence of gonococci cannot be demonstrated."

The History of Medicine in the United States. A collection of facts and documents relating to the history of medical science in this country, from the earliest English colonization to the year 1800; with a supplemental chapter on the discovery of anesthesia. By FRANCIS RANDOLPH PACKARD, M.D. Octavo, 526 pp. Philadelphia and London: J. B. Lippincott Company. 1901.

This is a timely and acceptable book. The author, as he states in the preface, has produced a work which has occupied many years in preparation, and has "truly been a labor of love." The interest it will arouse may not be general, but it will, most certainly, appeal to that growing body of physicians who are interested in the history of the development of their profession. At this period of the somewhat endless multiplication of medical books on so-called practical branches of medicine, it is a pleasure to take up a book which apparently has been written for no ulterior end.

The author has traced the history of medicine in America from the earliest days of English colonization down to the year 1800, with a supplementary chapter on the discovery of anesthesia. The task has, no doubt, been a difficult one, and the author has done well to draw liberally in the way of quotations on various original sources, supplying himself an explanatory commentary. This method gives a certain quaintness to the text, and detracts nothing from the clearness of the exposition. An added interest is given by numerous illustrations, chiefly of physicians of distinction who made the history of medicine in the eighteenth century.

Although the author makes no mention of his intentions for the future, we trust he will see fit to supplement this admirable volume by another which will cover the vast development of medical science in the nineteenth century. The historical retrospect should not be lacking, now that a new century is fairly started on its way.

The book is appropriately bound and excellently printed, and contains a list of the chief authorities consulted and a good index. The volume is most creditable, both to author and publisher.

BIRTHS AND DEATHS IN PHILADELPHIA. — It is stated that a recent report to the Philadelphia Board of Health showed that in the preceding week and in the last year there were more deaths than births in the city. During the week it is reported that there were 413 births and 565 deaths, and during the last year 10,013 births and 10,510 deaths.

THE BOSTON

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ANOTHER ALLEGED CAUSE OF CANCER.

THE recent announcement, widely heralded in the newspapers, that the cause of cancer has been discovered to be a protozoon, as the result of work done in the New York State Pathological Laboratory, has attracted the attention of medical men on account of the high character of that institution.

The official statement concerning this work, published by the Director of the Laboratory as a leading article in the May number ef the *American Journal of Medical Sciences*, offers us an opportunity of estimating the merits of this alleged discovery.

We have read and reread this article with painstaking care and attention. We find the matter illogically and disconnectedly arranged, and the text abounding in paragraphs in which observation, inference and unjustified assumption are confused to such an extent as to render a scientific analysis difficult. The article shows a lack of that objectiveness which we look for in a scientific paper and a tendency to make facts harmonize with theory.

The author states that he has found large numbers of parasites which he calls protozoa in "all the organs, including the blood taken from all regions of all cases dying of cancer, including sarcoma and epithelioma," and also in the peritoneal fluid, in the organs and the blood of animals injected with carcinomatous material. He claims that he has seen this organism project pseudo-podia, and he has satisfied himself that it goes through a life cycle which ends with the formation of a sac-like body containing granules which he regards as spores. He also claims that he has found what he regards as the younger forms of these organisms in the peripheral blood in all cases of carcinoma and sarcoma examined by him in which cachexia was well marked.

We have carefully searched through this publication for some refutation of the obvious objection that the objects seen by the author and regarded by him as parasites are not simply more or less degenerated cells and products of cell degeneration, but we have found nothing that is satisfactory. The only objective evidence offered upon this point is the statement made in several places that the bodies are not fat, because they fail to give the reaction to fat. Another objection to the correctness of these results is the lack of proof by cultures.

Although the fact of cultivation of these hypothetical organisms is of the greatest importance for the justification of the author's belief that he has to deal with a parasite, he witholds, apparently, for a later publication, the description of the results of his culture experiments, merely offering the statements that he has succeeded in cultivating them "with comparative regularity, directly from cancer, from fluids which were in contact with cancer and from experimental animals," and that "the medium which has thus far given us the best results is that recommended by Celli for the cultivation of amœbæ, fucus crispus bouillon." Until some objective description of the results of these culture experiments is at hand we decline to assign any value to these statements in their bearing upon the question of parasites in carcinoma.

In brief, we cannot accept the conclusions and views of the author as above outlined; indeed, unsupported as they are by anything else than subjective evidence, they seem to us to be unworthy of serious consideration.

The reported results of the injection of a number of animals in various ways "with peritoneal fluid from cases of abdominal carcinosis, fluid from the interior of malignant ovarian cysts, sterile cancer, and dried sterile cancer and lymph-nodes rubbed up with salt solution," as also with what the author calls *pure cultures* of the organism, challenge attention.

That the author means by the term "culture" in this connection a growth of his assumed organism on a medium outside of the animal body is open to doubt, as will be apparent from the following quotation: "It will be shown from these experiments that animals are readily infected when inoculated with carcinomatous material, as well as *pure cultures* of the organism. The peritoneal fluid used in all of these inoculations was bacteriologically sterile and consisted essentially of a *pure culture*[1] of the organism." This statement clearly means that cultures in the usual sense of the term were not used for the inoculation of any of the animals.

[1] The italics are ours.

It appears that of the experimental animals, of which there were a considerable number, all, with the exception of one or two which were killed purposely, died after a variable length of time, often weeks and months, with emaciation, enlargement of the peritoneal lymphatic glands and of the spleen, and a small amount of fluid in the peritoneal cavity. Among these animals were three guinea pigs and two rabbits, which had been injected in the jugular with carcinomatous peritoneal fluid, and in whose lungs were minute disseminated tumors which the author found on microscopical examination to be multiple beginning foci of adeno-carcinoma. Also a dog, similarly treated, was found to present a lipoma of the spleen the size of a hazel nut, while one guinea pig, in the author's words, "presents a condition of the lungs and liver which I wish to interpret as primary carcinoma of those organs." Whether this last-mentioned guinea pig is one of the three guinea pigs previously mentioned, the author does not make clear.

These observations of a tumor formation in five or six of the experimental animals are important, if true. In only one of the animals are the microscopical appearances of the tumors objectively described. In this animal, from the author's description and from the photographs, we are convinced that true adenomatous neoplasms were present in the lungs. As to the nature of the conditions in the other four or five animals, we have only the author's interpretation and judgment. Because the contents of the paper as a whole do not inspire us with confidence in the author's interpretation of histological facts, we cannot accept his judgment on these cases of tumor formations as true without further objective statements.

If we believe that the author is not mistaken in his diagnosis of the conditions in these four or five animals, we must consider these tumor formations to be the result of the injection of the carcinomatous material, for the number of instances is then too large for their presence to be explained as the result of coincidence or spontaneous development. We thus arrive at a result which is altogether at variance with the results of trustworthy workers who have experimented upon animals with material derived from malignant disease in man.

The effects reported of the other experimental animals are of interest as indicating the poisonous character of the material injected into them, but they do not show that they are due to a parasite in this material, for, as before stated, we cannot accept the author's conclusions that he has seen parasites in the tissues and body fluids of these animals.

In our opinion, the publication of this article is to be regretted, not only because it will tend to spread through the profession and the community

ideas concerning the nature of cancer which are not supported by facts, but also because the palpable technical defects of the article will tend to bring scientific medicine in America into disrepute.

A MUNICIPAL HOSPITAL FOR PULMONARY TUBERCULOSIS.

A PUBLIC hearing before the Joint Committee upon Finance of the Boston Board of Aldermen and the Common Council upon the question of the construction of a Municipal Hospital for Consumptives, held at the aldermanic chamber last Tuesday evening, brought forth evidence of deep interest in this community in regard to this important matter. No less than eighteen physicians and laymen appeared and spoke in behalf of municipal care of consumptives in the city of Boston.

The first speaker, Dr. F. I. Knight, explained in a general way the needs which exist of a hospital for patients suffering from tuberculosis, outlined the scope of its possible usefulness and emphasized the large percentage of deaths due to consumption. He was followed by Dr. V. Y. Bowditch, who described the methods employed at the State Hospital at Rutland, and offered to the committee suggestions as to the probable expense of a municipal hospital adapted to similar purposes in the city of Boston. He especially advocated provision for chronic cases.

Dr. A. K. Stone heartily favored hospital treatment for tuberculosis on the grounds that such treatment enables the patient to be much better cared for than he can be in his own home, that his removal from home permits possible wage-earners in his family who are hindered from securing a livelihood by their necessitated attendance upon him, to earn their living and so to avoid pauperism, and, finally, because the segregation of the infected individual tends to prevent the spread of the disease by contagion.

Dr. Robert B. Howard advocated other provisions for the treatment of advanced cases than now exist, on account of the fact that many persons suffering from tuberculosis find it a great hardship to enter the charitable institutions, which, alone, among the hospitals at the present time, receive such cases.

In speaking of the expense of construction, Dr. Howard expressed the opinion that a hospital within the fire limits would cost about $2,000 a bed; buildings could, in his judgment, be erected outside the limits for a much less outlay.

Mr. J. H. Gallivan, street commissioner, who was interested in the founding of the Rutland Hospital, referred to the overcrowded condition of that institution and to the impossibility of its caring for any considerable proportion of the cases of tuberculosis now existing in Boston. He warmly supported any project in the direction of a municipal institution for the treatment of consumption.

The next speaker, Dr. W. H. Prescott, referred to his experience with tuberculosis in Boston in connection with work upon a Dispensary District, and at the Long Island and the Deer Island Hospitals. He has observed that tuberculous patients in the last two mentioned institutions do well in spite of their proximity to salt water. He believed, both from a medical and from an economical standpoint, that some plan should be formulated whereby consumptives may have an asyulm.

Dr. T. J. Reardon referred to the great prevalence of tuberculosis in Boston and to the decimation of families which it has effected, expressing the belief that our climatic conditions favor the spread of the disease.

Dr. H. C. Ernst favored the attempt to provide for the needs of tuberculous patients among the poor of the city, and suggested as a possible and suitable location for a hospital a tract of land in Jamaica Plain, overlooking the Arnold Arboretum.

In behalf of educational methods in the treatment of tuberculosis, Dr. Agnes E. Vietor, advocated small hospitals in various parts of the city which might stand in the same relation to the special hygiene of tuberculosis that the municipal bathhouses hold to general hygiene.

Dr. George Burgess McGrath spoke briefly of the work done by the Long Island Hospital in the care and treatment of tuberculosis, and of the results which have been obtained by the methods there employed. This hospital, which is upon one of the larger islands in the harbor, is one of the few institutions in which tuberculosis is treated at practically sea-level and in close proximity to salt water. The patients of this hospital have the advantages of about a square mile of territory, including nearly three miles of sea-beach, abundance of fresh air and sunshine, immunity from dust, and a geographical position which affords an attractive outlook and many means of diversion. Notwithstanding the hitherto inadequate parietal resources of the institution, 23% of the 160 cases of phthisis treated in the hospital during the year ending April first were discharged "well" or with the disease "arrested."

Dr. E. O. Otis, urged that the poor of our city should be protected from tuberculosis, and emphasized the fact that at the present time there is no municipal institution in which they may obtain treatment for the disease without receiving the stigma of pauperism.

Drs. Donoghue, Allen, Badger and Perry followed Dr. Otis, each giving some account of his

own experience with tuberculosis in connection with his Dispensary District work.

The Rev. Mr. George, of South Boston, the last speaker, strongly advocated tenement-house improvement and emphasized the crying need of better sanitation and hygiene in the homes of the poorer classes.

Councilman O'Toole then summed up the case for the petitioners, and the hearing was declared closed, the committee taking the matter under advisement.

This question of sanitoria and hospitals for those afflicted with pulmonary tuberculosis, is demanding constant and increasing attention, and we shall have to revert to it not infrequently — doubtless in connection with this very petition. Assent to the general proposition involved is more easy than agreement upon the details for its practical application.

MEDICAL NOTES.

A Field Hospital at the Pan-American Exposition. — Captain Edward L. Munson, U. S. A., has been selected to represent the medical department of the Army at the Pan-American Exposition at Buffalo. He will have charge of an exhibit consisting of a model field hospital, and will be in command of a detachment of thirty soldiers, who will give daily demonstrations of transportation of wounded, first aid on the firing line and field surgery, and the establishment and management of field hospitals.

Mississippi Valley Medical Association. — It is announced that the dates of the next meeting of the Mississippi Valley Medical Association have been changed from the 10th, 11th and 12th of September, to the 12th, 13th and 14th of September. This change has been made necessary because the dates first selected conflicted with another large association meeting at the same place.

Proposed State Sanatorium for Tuberculosis in Minnesota. — The Minnesota Legislature has established a commission to report concerning the advisability of a State Sanatorium for Consumptives.

Meeting of the American Medical Editors' Association. — The annual business meeting of the American Medical Editors' Association will be held in St. Paul, Monday, June 3, 1901.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 15, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 80, scarlatina 31, measles 139, typhoid fever 7.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending May 11th was 238, as against 203 the corresponding week last year, showing an increase of 35 deaths, and making the death rate for the week 22.1. Consumption 24, pneumonia 36, whooping cough, 0, heart disease 22, bronchitis 10, marasmus 3. There were 11 deaths from violent causes.

Further Opposition to Christian Science. — The elderly man who has been living during the winter in a tent in an outlying portion of Boston, presumably for the treatment of tuberculosis, is said to be gaining adherents to his doctrines, whatever these may be. If the following statement from a daily paper be true, they are, at least, sound in certain details: "At the same time with consumptives he wishes to treat people suffering from any disease which Christian Science has tried to cure and failed. He will take any such case — providing it is not surgical or contagious — and produce, by purely scientific methods, the same results that Christian Science sometimes produces; in other words, he will cure without medicine and without faith. He believes that Christian Science is spreading too rapidly, not only in this country but also abroad, and that its influence is pernicious, particularly in the disregard of contagious disease and the blessings of antitoxin which it teaches. Therefore, he says that he wishes to disprove its theories by cold scientific proof."

Worcester, Mass., Mortality Report. — The mortality report of Worcester, for March, 1901, gives the number of deaths, 189, as against 169 for March, 1900. It is of interest to note that 50 deaths, or 26.45% of the whole number were caused by pneumonia.

Pathologist to the Carney Hospital. — We understand the position of pathologist to the Carney Hospital is now vacant.

NEW YORK.

Law Regarding Disposal of Garbage Unconstitutional. — On May 10th the Appellate Division of the Supreme Court, in a suit brought by the Sanitary Utilization Company, upheld a judgment of the special term which declared unconstitutional the law which was passed by the legislature in April, 1900, without the acceptance of the city, amending Section 1,212 of the Greater New York charter. The section, as amended, made it unlawful to carry on, in Manhattan Borough, "bone boiling, bone burning, bone grinding, horse skinning, cow skinning, or the skinning of dead animals, or the boiling of offal," and made it also unlawful to carry on in the borough of Brooklyn the "rendering or treat-

ing with steam or boiling of garbage, swill or offal." It furthermore made it the duty of the Board of Health to cause the discontinuance of such business. The action was brought to restrain the Health Department from taking any steps to enforce against the company any of these provisions. The site of the company's plant on Barren Island was selected by the late Col. George E. Waring, Jr., when street cleaning commissioner, and the expense of erecting buildings and appliances was over $500,000. Within three months after the expiration of the contract then made, the city, by its terms, may acquire the plant at a price fixed by appraisal. The amount of garbage disposed of under the contract is stated by the company to be 900 tons a day during the year, and amounted to over 1,500 tons a day during the summer months. The case was before the court on demurrer to the complaint, and the judgment below sustaining the demurrer is now upheld.

MEDICAL SOCIETY OF THE STATE OF NEW YORK. — At the ninety-fifth annual session of the Medical Society of the State of New York, held at Albany, N. Y., January 29, 30 and 31, 1901, it was moved and unanimously adopted that, in order to increase the facilities for becoming permanent members of the society, each county society should be allowed to send five times the number of delegates it had formerly sent to the State society. These delegates are elected for a term of three years, and are eligible for permanent membership if they register twice during that time. This will make the number of delegates from county societies 750 in all, or one delegate for every eight or nine members of county societies, without increase of expense to the county societies. It was further agreed, in response to a widely expressed desire, that the society hold a semi-annual meeting in the city of New York in the early autumn, to be devoted entirely to scientific work and social intercourse.

MORTALITY STATISTICS OF NEW YORK. — The mortality of the city reported for the month of April represents an annual death rate of 20.67, against 21.39 in March and 24.26 in April of last year. As compared with March, the weekly average of deaths from pneumonia declined from 201 to 166.75; from influenza, from 27 to 17.5; from phthisis, from 179.75 to 177.5; from bronchitis, from 49.5 to 42.25; from diseases of the urinary system, from 129.25 to 124; and from diphtheria and croup, from 52 to 49.5. The weekly average of deaths from cancer increased from 48.5 to 51.25; from typhoid fever, from 9.5 to 11.25; from whooping cough, from 4.25 to 5.5; from scarlet fever, from 34.75 to 43.75; from measles, from 6.5 to 8.75; and from smallpox, from 8 to 9.25.

RESIGNATION OF DR. ROGER S. TRACY. — Dr. Roger S. Tracy, who has been in the service of the Board of Health for nearly thirty-one years, and who built up the system of recording vital statistics now in vogue and which has been followed by other cities here and abroad, resigned from the department on May 1st. He was first appointed registrar of records under the presidency of J. C. Bayles, and retained the position until 1892. From 1892 to 1895 he served as deputy registrar, and was then made registrar again. Dr. Tracy, in addition to numerous contributions to scientific publications, has written a work on "Physiology and Hygiene," and a "Handbook of Sanitary Information for Householders." He expects to travel for a time and to devote himself to literary work.

ACTION AGAINST CHRISTIAN SCIENTISTS. — The New Jersey Grand Council of the Royal Arcanum, representing 117 chapters in the State, in session at Trenton on May 7th, adopted a resolution to the effect that all persons who, when ill, reject, refuse or neglect the aid of medical science, are a very dangerous risk from an insurance standpoint, and that hereafter they shall not be eligible to membership in the order, unless agreeing or contracting to obtain or submit to such aid when ill, under penalty of forfeiture of insurance.

USE OF INTOXICANTS NOT A REASON FOR REFUSING LETTERS OF ADMINISTRATION. — Surrogate Petty, of Suffolk County, N. Y., has recently decided that the fact that a woman who has for some years been at times addicted to the excessive use of intoxicating liquors, is not a sufficient reason to refuse her letters of administration on the estate of her husband. In the case in which the decision was rendered, the application for letters of administration was opposed by the three adult children of the deceased.

SPREAD OF SMALLPOX. — In the first six days of May 135 cases of smallpox were reported, while during the entire month of April the number of cases amounted to but 199. The disease seems to be now well disseminated in all the boroughs of the city. On May 9th a policeman was attacked by smallpox and, on account of this, an order was issued by the head of the department that the entire police force should at once be vaccinated.

BEQUESTS TO HOSPITALS — Under the will of the late Joel Friedman the Montefiore Hospital for Chronic Diseases receives a bequest of $1,500 and the Mount Sinai and Beth Israel Hospitals each $1,000.

DECISION AGAINST NEW YORK UNIVERSITY. — One step in the litigation which has been in progress for years between the New York University

and the medical collage laboratory and the Loomis Laboratory has been terminated. Judge Truax of the Supreme Court gave decisions by which the medical school property on East Twenty-Sixth Street and its contents, valued at $150,000, is to be transferred by the New York University back to the medical college laboratory.

APPOINTMENT OF DR. L. EMMETT HOLT. — At the monthly meeting of the Trustees of Columbia University, held May 6th, Dr. L. Emmett Holt was appointed Clinical Professor of the Diseases of Children in the Medical Department.

AN EMERGENCY HOSPITAL ESTABLISHED BY WOMEN. — On May 5th, an Emergency Hospital established by women, with twenty-five beds and a well-equipped operating room, was opened in the old Gardner mansion at Union Hill, N. J.

BEQUEST TO FOUNDLING ASYLUM. — Among the charitable bequests of the late Mrs. Nathalie Reynal is one of $5,000 to the New York Foundling Asylum.

Correspondence.

SHALL IT BE SUNLIGHT OR SLEEP FOR CHILDREN? WHICH IS THE MORE EFFECTIVE AGENT FOR GENERAL HEALTH?

BOSTON, May 1, 1901.

MR. EDITOR: — I have recently passed through an experience that may prove of some value in answering the above questions. You know how prevalent the opinion is among those who have the means to enable them to take the best care of their children, that they should be put to bed in the middle of the day and sleep an hour or two. We have tried most thoroughly this system with our two children, continuing it until they arrived at the ages of two and one-half and three and three-quarters, respectively. They were very healthy children naturally, but we were constantly obliged to have medical attendance for them, and at one time they had serious difficulty with their ears, requiring surgical operations. Although they slept an hour or two, it kept them in-doors the best portion of the day. Between dressing and undressing, lunch and sleeping, there were six months in the year when they got, practically, very little sunlight, and what they did get was of very little consequence, it being so early in the morning or so late in the afternoon.

About six months ago we ceased putting them to bed and let them play out-doors all day long, and immediately we saw an improvement. Since then they have constantly gained until now they are as robust as any children could well be. Although one swallow does not make a summer, two swallows are twice as near to it, and our experience with these two children seems to me to go far towards proving that sunlight is one of the most effective agents for preserving the health of any living creature.

Nobody can over-estimate the value to health of sleep, but does the child get more sleep in the twenty-four hours by being put to sleep in the middle of the day? Our experience proved to us that this was not the case. For though our children slept an hour and a half during the day, they lost from one-half to three-quarters of an hour in getting to sleep in the evening, and woke an hour earlier than now in the morning.

Very truly yours,

E. G.

METEOROLOGICAL RECORD.

For the week ending May 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S...28	30.47	46	55	38	32	48	40	N	S E	15	4	C.	C.	.0
M..29	30.28	58	75	42	35	33	34	N W	S W	4	15	C.	C.	.0
T...30	30.05	51	61	41	58	93	76	N	S E	12	8	O.	R.	.12
W..1	29.96	46	51	42	89	82	86	N E	E	9	2	O.	C.	.20
T....2	29.74	46	53	38	85	86	86	S	S W	12	13	O.	O.	.01
F...3	29.68	50	54	46	69	42	56	N W	N W	18	18	O.	C.	.82
S....4	29.87	52	62	42	30	48	39	N W	N W	20	9	C.	O.	.0
☞	30.01		59	41			60							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 4, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Acute lung diseases.	Scarlet fever.	Cer. spinal meningitis.	Diphtheria and croup.
New York	3,437,202	1,245	436	26.26	13.65	3.05	.40	3.61
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	188	53	19.15	8.94	—	1.06	.53
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	326,902	—	—	—	—	—	—	—
Pittsburg	321,616	138	49	23.91	14.92	.72	—	.72
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	67	15	22.08	17.90	—	—	—
Boston	560,892	234	65	25.64	18.37	3.84	.42	2.56
Worcester	118,421	27	16	7.40	7.40	3.70	3.70	—
Fall River	104,863	—	—	—	—	—	—	—
Lowell	94,969	35	12	11.43	14.28	—	2.85	—
Cambridge	91,886	24	8	33.33	8.33	—	4.16	4.16
Lynn	68,513	23	5	21.75	4.35	—	8.70	—
Lawrence	62,559	14	5	14.28	7.14	—	—	—
New Bedford	62,442	15	4	26.67	—	—	—	6.67
Springfield	62,059	20	3	25.00	5.00	—	—	—
Somerville	61,643	17	3	5.88	17.64	—	—	—
Holyoke	45,712	9	3	—	22.22	—	—	—
Brockton	40,063	5	1	40.00	—	—	—	—
Haverhill	37,175	11	1	45.45	—	—	—	—
Salem	35,956	—	—	—	—	—	—	—
Chelsea	34,072	9	4	11.11	—	—	—	11.11
Malden	33,664	10	4	20.00	—	—	—	20.00
Newton	33,587	8	2	—	—	—	—	—
Fitchburg	31,531	11	3	27.27	—	—	—	—
Taunton	31,036	4	1	50.00	—	—	—	—
Gloucester	26,121	4	1	50.00	—	—	—	—
Everett	24,336	7	1	42.84	—	—	—	14.28
North Adams	24,200	10	2	30.00	10.00	—	—	10.00
Quincy	23,899	8	1	12.50	12.50	—	—	—
Waltham	23,481	1	—	10.00	—	—	—	—
Pittsfield	21,766	2	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	5	2	40.00	—	—	—	—
Medford	18,244	4	1	25.00	25.00	—	—	—
Newburyport	14,478	4	1	25.00	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,182; under five years of age 702; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 502, acute lung diseases 282, consumption 270, diphtheria and croup 60, diarrheal diseases 56, scarlet fever 50, influenza 3, erysipelas 12, typhoid fever 29, whooping cough 14, measles 12, cerebro-spinal meningitis 13, smallpox 10,

From whooping cough, New York 6, Pittsburg 5, Providence 1, Boston 2. From cerebro-spinal meningitis, New

York 5, Baltimore 2, Lynn 2, Boston, Worcester, Lowell and Cambridge 1 each. From scarlet fever, New York 38, Pittsburg 1, Boston 9, Worcester 1, Revere 1. From typhoid fever, New York 11, Baltimore 1, Pittsburg 12, Boston 3, Haverhill 1, Newburyport 1. From erysipelas, New York 4, Baltimore 3, Providence 1, Boston 3, Chicopee 1. From smallpox, New York 10.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending April 20th, the death rate was 18.4. Deaths reported, 4,159: acute diseases of the respiratory organs (London), 374, whooping cough 108, diphtheria 39, measles 117, fever 27, scarlet fever 20.

The death rate ranged from 10.8, in Burnley, to 25.4, in Wolverhampton; Birkenhead 19.2, Birmingham 21.6, Blackburn 19.5, Bolton 19.4, Bradford 16.1, Brighton 15.0, Bristol 18.4, Cardiff 12.3, Croydon 13.5, Derby 17.1, Gateshead 22.3, Halifax 11.2, Huddersfield 14.8, Hull 18.0, Leeds 20.3, Leicester 16.2, Liverpool 22.9, London 17.5, Manchester 22.7, Newcastle-on-Tyne 20.4, Norwich 16.6, Nottingham 23.7, Oldham 14.4, Plymouth 13.1, Portsmouth 19.1, Preston 18.2, Salford 18.7, Sheffield 21.9, Sunderland 22.0, Swansea 20.4, West Ham 11.9.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED MAY 11, 1901.

J. S. TAYLOR, assistant surgeon, detached from the Manila, and ordered to the Naval Hospital, Yokohama, Japan.

F. L. BENTON, assistant surgeon, detached from the Naval Hospital, Yokohama, and ordered to duty on the Asiatic Station.

E. Z. DERR, medical director, detached from the Naval Academy, and ordered home to wait orders.

F. W. F. WIEBER, surgeon, detached from the Naval Station, San Juan, and ordered to the Naval Academy.

C. H. T. LOWNDES, surgeon, detached from the Lancaster, May 11th, and ordered to the Naval Station, San Juan, P. R.

E. S. BOGERT, passed assistant surgeon, ordered to the Lancaster, May 11th.

L. W. Curtis, surgeon, detached from the Vermont, May 11th, and ordered home and to be in readiness for sea duty.

G. PICKRELL, surgeon, ordered to the Vermont, May 11th.

C. F. STOKES, surgeon, detached from the Asiatic Station, and ordered home via mail steamer.

SOCIETY NOTICES.

AMERICAN DERMATOLOGICAL ASSOCIATION.—The twenty-fifth annual meeting of the American Dermatological Association will be held in Chicago, May 30 and 31 and June 1, 1901.

MASSACHUSETTS MEDICAL SOCIETY.—The annual meeting of the Massachusetts Medical Society will be held at 9.30 A.M., Wednesday, June 12, 1901, in Chickering Hall, on Huntington Avenue, near Massachusetts Avenue, Boston. Meetings of Sections will be held in the Medical Library, 8 The Fenway, on the preceding day, Tuesday, June 11th.

RECENT DEATH.

IRVING C. ROSSE, M.D., of Washington, died in that city on May 3d, at the age of fifty-four years. He was graduated from the medical department of the University of Maryland in the class of 1866. He served in the medical corps of the United States Army during the Civil War and later. He was a member of the American Medical Association, of the Medical Society of the District of Columbia, of the American Anthropometric Society of the American Neurological Association, and of the New York Medico-Legal Society. He was a frequent contributor to medical literature, especially in the line of neurology and psychiatry.

BOOKS AND PAMPHLETS RECEIVED.

Circular No. 3. War Department. Surgeon General's Office. Reprint. 1901.

A Plan for the Study of Man. By Arthur MacDonald, Washington, D. C. Reprint. 1901.

Zur Behandlung des Pyothorax. Von Prof. Dr. Carl Beck, New York. Illustrated. Reprint. 1898.

Ueber Tendinitis und Tendovaginitis prolifera calcarea. Von Carl Beck, New York. Illustrated. Reprint.

Ueber die Bedeutung der Röntgenstrahlen bei der Spina bifida. Von Prof. Dr. Carl Beck in New York. Reprint. 1898.

Mauclaire (Paris), Autogreffes sous-cutanées des ovaires après salpingo-ovariectomie. (XIIIe Congrès de médecine. Section de gynécologie.) Reprint. 1900.

Points of Practical Interest in Gynecology. By H. Mac-Naughton-Jones, M.D., M.Ch., Q. U. I. Reprint. Illustrated. New York : William Wood & Co. 1900.

Handbuch der Physikalischen Therapie. By Dr. A. Goldscheider and Dr. Paul Jacob. Teil I, Band I. Illustrated. Leipzig : Verlag von Georg Thieme. 1901.

Uterine Fibromyomata. Their Pathology, Diagnosis and Treatment. By E. Stanmore Bishop, F.R.C.S. (Eng.) Illustrated. Philadelphia : P. Blakiston's Son & Co. 1901.

XIIIe Congrès International De Médecine. Du Traitement des rétrodéviations utérines par le raccourcissement intrapéritonéal des ligaments ronds. Par Le Docteur Czeslaw Stankiewicz. Paris. Reprint. 1900.

Eczema With an Analysis of Eight Thousand Cases of the Disease. By L. Duncan Bulkley, A.M., M.D. Third edition of Eczema and its Management, entirely rewritten. New York & London : G. P. Putnam's Sons. 1901.

Atlas and Epitome of Labor and Operative Obstetrics. By Dr. Oscar Schaeffer. Authorized translation from the fifth revised German edition. Edited by J. Clifton Edgar, A.M., M.D. Illustrated. Philadelphia and London : W. B. Saunders & Co. 1901.

A Textbook of the Practice of Medicine. By Dr. Hermann Eichhorst. Authorized translation from the German. Edited by Augustus A. Eshner, M.D. Illustrated. Vols. I and II. Philadelphia and London : W. B. Saunders & Co. 1901.

Atlas and Epitome of Ophthalmoscopic Diagnosis. By Prof. D. O. Haab, of Zurich. Authorized translation from third revised German edition. Edited by G. E. De Schweinitz, A.M., M.D. Illustrated. Philadelphia and London : W. B. Saunders & Co. 1901.

Essentials of the Diseases of Children Arranged in the Form of Questions and Answers Prepared Especially for Students of Medicine. By William M. Powell, M.D. Third edition, thoroughly revised by Alfred Hand, A.B., M.D. Philadelphia and London : W. B. Saunders & Co. 1901.

Anatomical Atlas of Obstetrics With Special Reference to Diagnosis and Treatment. By Dr. Oscar Schaeffer. Authorized translation from the second revised German edition. Edited by J. Clifton Edgar, A.M., M.D. Illustrated. Philadelphia and London : W. B. Saunders & Co. 1901.

Endothelioma of the Gasserian Ganglion. Two Successive Resections of the Ganglion : First, by the Extradural (Hartley-Krause) Operation, and secondly, by an Intradural Operation. By F. X. Dercum, A.M., M.D., W. W. Keen, M.D., LL.D., and Wm. G. Spiller, M.D., Philadelphia. Reprint. Illustrated. 1900.

Atlas of the Nervous System. Including an Epitome of the Anatomy, Pathology and Treatment. By Dr. Christfried Jakob. With a preface by Prof. Dr. Ad. v. Strümpbell. Authorized translation from second revised German edition. Edited by Edward D. Fisher, M.D. Illustrated. Philadelphia and London : W. B. Saunders & Co. 1901.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. II. Fevers, Diseases of the Respiratory and Circulatory Systems, Diseases of the Digestive System and Kidneys, Nervous Diseases and Diseases of the Skin. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Hernia (Rupture). Its Etiology, Strangulation, Treatment and Radical Cure by Electro-Cataphoric, Chemical Hypodermic and Surgical Methods. By Samuel H. Linn, M.D., Rochester, N. Y., University of Pennsylvania, Class of 1877 ; Academy of Natural Sciences, Philadelphia, Pa. ; Monroe County Medical Society ; Medical and Surgical College, St. Petersburg, Russia, etc. Reprint. Illustrated. 1901.

Peripheral Resection of Fifth Nerve. Three Cases with Microscopic Examination of the Portion of the Nerves Removed and Report on the Later Condition of Patients. By W. W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, and Wm. G. Spiller, M.D., Professor of Diseases of the Nervous System in the Philadelphia Polyclinic, Associate in the Pepper Clinical Laboratory, University of Pennsylvania, Philadelphia. Reprint. Illustrated. 1900.

Original Article.

MUNICIPAL CARE OF THE CONSUMPTIVE POOR.[1]

BY S. A. KNOPF, M.D., NEW YORK.

My first duty is to thank your distinguished president and the members of the Suffolk District Medical Society for the great honor you have conferred upon me by the invitation to address you this evening. For a stranger to be invited to read a paper before a medical body is always an honor; for a New Yorker to be invited by an audience of medical men of the great city of Boston, which, I think, should not only be called the Athens of America but also the American Athens of Medical Science, is an unusually great honor, and I wish to express to you my deep appreciation of it.

Boston was the cradle of anesthesia, the greatest blessing which was bestowed on mankind during the past century. It was here that the three great immortals of modern medicine, Bowditch, Holmes and Bigelow, gave to the world their wisdom and the experience of a long life's work, worthy of an Athenian of old. On the very subject about which I am going to speak, you, the sons, friends and pupils of these great modern teachers, have given to the rest of the American physicians, sanatarians and statesmen an example in the modern way of caring for, treating and curing the consumptive poor and those of moderate means. Your Sharon Sanatorium was the first of its kind to demonstrate the truth of a most important maxim in modern phthisiotherapy, namely, that the hygienic and dietetic treatment of pulmonary tuberculosis can be carried out with satisfactory results everywhere where the extremes of temperature are not too pronounced, and where there is relatively pure air and the condition of the soil and general environments are sanitary; also, that special climatic advantages, while a valuable adjuvant in phthisiotherapeutics, are no longer considered essential to the successful treatment of consumption. You all know of the excellent work this institution has done under the able directorship of Dr. Vincent Y. Bowditch; you are familiar with its results; but you may not know as well as I what a valuable lesson this work of Boston physicians has been to the rest of us. You have done the pioneer work in this direction, and in one of your neighboring towns an ingenious physician, Dr. C. S. Millett, of Brockton, has given additional glory to New England physicians by having demonstrated at East Bridgewater that the much feared New England climate is not only well suited to the treatment of patients in the various stages of pulmonary tuberculosis, but that even the New England night air can be advantageously enlisted as a factor in phthisiotherapeutics.

To you again belongs the honor of having the first State sanatorium in this country for the treatment of indigent consumptives in the primary stages of the disease. But you are not content with your laurels, you want to do more. You desire also to have the first city sanatorium, the first municipal institution in this country for the exclusive treatment of the consumptive poor. You are anxious to take care of those who can not get into the State sanatorium, the Sharon Sanatorium or similar institutions, depending for their support on private philanthropy. In other words, you wish to show that there must, can and should be municipal care of the consumptive poor besides the work the State or private philanthropy can accomplish.

I do not wish to discourage you when I say that the work which you are about to undertake is the most difficult of all, and the magnitude of it may seem at first appalling to some of you. You have, however, the reputation of being able to accomplish difficult things, and the record of the past shows what you can do when your cause is just and good, and you have the support of those who can and are glad to help.

Since you have honored me by asking my assistance, permit me first to show those to whom you may appeal for help and support the justice of your cause.

I will not burden this paper with many statistics, for you all know that pulmonary tuberculosis is the most prevalent of all diseases. You know, furthermore, that it is most frequent among the poor and in the most densely crowded quarters of great cities.

To demonstrate the difference in the mortality from, and morbidity of, tuberculosis in the various quarters of a city, and among the different classes of the population, I will only quote from three cities, namely, Paris, Hamburg and New York.

In the French capital the mortality from tuberculosis in the poorest quarters is 65 per 10,000 inhabitants. In the quarters occupied by the working classes about 50 per 10,000, and in the quarters of the rich it is only 20 per 10,000 inhabitants.

In Hamburg, among the people who earn less than $500 per year the death rate from tuberculosis is 40 per 10,000, and among those earning more it is only 15 per 10,000 inhabitants.

For New York I have been enabled from the existing maps of the Health Department, to which, thanks to the courtesy of Doctor Tracy, I had free access, to compile the following interesting figures: In the very poorest quarters, such, for example, as in the First Ward, near the Battery, where the Assyrians live, the mortality from tuberculosis is not less than 72 per 10,000 inhabitants. Next high in the death rate from tuberculosis comes Ward 4, which includes Park Row, where it is 63 per 10,000 inhabitants. Then comes Ward 8, that portion situated between Spring and Canal Streets, Broadway and Warrick, with 58; Ward 5, West of Hudson, between Read and Canal Streets, with 54; then Ward 21, the slaughterhouse district, above 40th Street, east of Second Avenue, also with 54; Ward 20, between

[1] Address delivered by invitation before the Clinical Section of the Suffolk District Medical Society, April 17, 1901.

26th and 31st Streets, West of Ninth Avenue, 54; and in the same Ward, between 31st and 40th Streets, between Ninth and Sixth Avenues, only 37; Ward 15, the lower half, between West 4th and Houston, Sixth Avenue and Broadway, mainly populated by French and Italians, 52; Ward 14, portion A, 50. In Ward 18, the portion east of First Avenue, the death rate is 49; and in the same Ward, near Madison Square, it is only 13. In the lower half of the Seventh Ward, largely populated by Irish longshoremen and sailors of all nationalities living in typical sailors' boarding-houses, the mortality from tuberculosis is 44 per 10,000 inhabitants; while in the upper part of Monroe Street, densely populated by Russian Jews, the mortality is only 35 per 10,000 inhabitants. In Ward 9, in Houston Street, west of Sixth Avenue, it is 43. In Ward 19, between First and Third Avenues, 54th and 70th Streets, where the artisans live, the mortality is 36. Ward 11 and 17 have a mortality of 35. Ward 10, the northern portion has 33, while in the southern portion, south of Grand Street, also populated by Russian Jews, it is 29. Ward 12, the portion situated between Columbus Avenue and Riverside Park, between 94th and 102d Streets, has only 18. The real wealthy portion of New York City, situated in Ward 19, between Park and Sixth Avenues, 50th and 59th Streets, has a death rate of 16 per 10,000 inhabitants. The same ward, between 70th and 76th Streets, Third and Fifth Avenues, has 11. That portion of the 22d Ward situated between Amsterdam Avenue and Central Park West, 66th and 77th Streets, has only 5, and Governor's Island, where our military posts are, has the smallest death rate from tuberculosis, that is to say, 3 per 10,000 inhabitants.

From the latest general statistics I could obtain, I learned that consumption was responsible for 11% of your own city's mortality.

However terrible as this mortality must seem, consumption is no longer considered a hopeless and incurable disease. It has been demonstrated that the early recognized case of tuberculosis has from 60% to 80% of chances of cure.

Not only living, but even the dead demonstrate the absolute curability of tuberculosis of the lungs. I know that some of my esteemed confrères in this city do not approve of the expression "absolute cure," when speaking of pulmonary tuberculosis, but prefer the more conservative expression, "arrested cases." But every one of them, I am quite sure, will acknowledge that there are a great many typhoid fever cases which will get absolutely well. In an absolutely cured typhoid fever case we would find, could we examine the inner lining of the patient's intestines, cicatritial tissue in the region of Pyer's patches. In the absolutely cured lung which was once invaded by the tubercles, we will find cicatritial tissue or a calcarious mass perfectly innoxious. I endeavored to collect statistics from the pathological records from all over the world for my little work on tuberculosis.[2] From them I learned that almost 25% of the people who died of accidents or diseases other than tuberculosis, showed in post-mortem examination evidences of absolutely healed pulmonary lesions. If I add to this evidence from the dead my personal experience with many living, and very much alive, former consumptives, who were considered phthisical as many as thirty years ago, my colleagues will understand my enthusiasm and reasons for preferring the word "cured" to the expression "arrested cases."

Pardon this little diversion from the real subject, but we must, in our combat against tuberculosis be permeated with the one great idea that pulmonary tuberculosis is not only an eminently preventable but also a very curable disease.

Statistics show that the mortality from tuberculosis is most frequent between the ages of seventeen and thirty-five, just at a period when the individual should be a most useful member of society, a breadwinner and, if possible, a supporter of a family.

Your presence here tonight is a strong protest against existing conditions which still allow such fearful mortality. You know it is in the power of man to prevent this great loss of life, this great economic loss to the community and the calamity which is brought to many a family by the untimely death of some of its members. You ask why should this city lose thousands of persons every year from a disease which can be prevented and cured, and thus suffer a far greater material loss than had the community provided for timely treatment and care of the consumptive poor. It is this class of poor who, owing to the peculiarity of the disease, are more dependent upon municipal care than any other class of people. I know that you have here in Boston not quite such a bad tenement-house system as we have in New York, but those of you who labor among the poor will bear me out when I say that even a Boston tenement home is not a fit place for a consumptive to live in.

The most essential requirements for the treatment of a consumptive are good pure air, and plenty of it; sunshine, and plenty of it; good food, and plenty of it; medical supervision, and plenty of it. Six hundred cubic feet of space should be the minimum allowance for an adult person in the state of health; the consumptive should have rooms with at least a thousand cubic feet of air at his disposal, day and night. You know how little sunshine enters in some of the tenements of your own city.

The nutrition a poor consumptive receives depends largely upon what member of a family he may happen to be. If it is the son or daughter the patient will probably not be in want of food. The parents will gladly provide for the needs of their loved one; but if the consumptive sufferer is the father or mother, and particularly if the father is the invalid and unable to work, there will be economizing with the savings of better days, and the food furnished for the invalid must of necessity be scanty. If, finally, the wife has to take up

[2] Knopf: Pulmonary Tuberculosis; its Modern Prophylaxis and the Treatment in Special Institutions and at Home. Philadelphia: P. Blakiston's Son & Co.

the burden of supporting the family, there will be still greater distress, for the patient will not only lack the necessary food, but he will also be deprived during the day of the presence of his companion who made his sufferings bearable by the thousand little attentions which only a devoted wife knows how to bestow. I have had, in my work as a phthisiotherapeutist, opportunity to know the life of the tenement dwellers. When everything goes well, when the husband is industrious, sober and at work, the wife intelligent, and the children not too numerous in the family, they are, as a whole, a happy lot of people. But when sickness comes, and particularly when that chronic and communicable disease, consumption of the lungs, strikes one of the tenement dwellers, the family's happiness is doomed. Tuberculosis is a disease which is costly. The first thing the doctor, if he should be called in, will prescribe, is better food, meat, plenty of milk and eggs. He will probably also urge them to buy another bed, for the conscientious physician will insist that the consumptive patient has his own bed, preferably also his own room. And, nevertheless, even if these latter precautions are carried out, the close proximity in which tenement families live makes the communication of the disease to others almost inevitable. There is, to my mind, no sadder fate than to be a poor consumptive having a family depending upon him for support. Everything that is needed to prevent or cure consumption is lacking in the tenement of the poor, and even the most careful, conscientious and experienced physician knows that when he is in the presence of a consumptive man or woman of the poorer class, who are forced to continue to reside in their unhygienic homes and unsanitary environments in general, all his efforts to save this life will be of no avail. It is the old story; the prognosis of consumption depends, alas! only too often as much upon the money bag of the patient as upon all the other factors. The physician may be willing, and I know he always is, to give his service gratuitously, but he knows that without a better and richer diet, careful nursing and an improved hygiene, his devotion will be useless.

What are we to do for the thousands of cases of that kind in your own and other cities? I cannot advise to you anything new, but only emphasize what others have said and proposed, and add, perhaps, a few suggestions which are not feasible everywhere, but may be feasible in the good city of Boston.

I have learned that there is now a bill before your legislature for the establishment of a second State sanatorium, and before your city government there is a similar bill for a city hospital for consumptives. This is a right beginning, and there is not a shadow of doubt in my mind that both bills will pass unanimously and be approved by the distinguished chiefs of your State and city. If you desire to know what makes me so sanguine, so sure of all this, I will gladly tell you. When preparing this address, I had before me *Charities*, the official organ of the Charity Organization Society of the city of New York, and here is what I read in an editorial of that paper of March 23d: "In the city of Boston, the helpless and unfortunate poor have a larger number of friends from the classes of the well-to-do than in any other city with whose needs and resources we are familiar. The evidence of this is abundant. They abound upon the boards which are at the head of the various city departments having charge of children, destitute adults and delinquents. They enroll by the hundreds for volunteer friendly visiting. They show in countless ways, even when not thus professionally connected with charitable activities, that they have a personal interest in the alleviation of distress and in the prevention of future dependence. Their views prevail before legislative committees and police commissions, in the mayor's office, and at the seat of executive State government. It is the normal and usual thing for the men, and, to an even greater degree, for the women, of Boston, whether they have had training in the Associated Charities or not, to have some familiarity with the elementary principles of charities, and in that fortunate city many fundamental axioms may be taken for granted which elsewhere have not been learned, or have been forgotten."

Your State legislature and your distinguished governor, your city fathers and your honorable mayor, will not only give you these two institutions and as many more as may be needed, because they are charitably inclined, but they know that through such wise legislation they will not only protect their fellow-citizens from the danger of contracting tuberculous diseases, but they also know that through such provisions a large majority of consumptives will be cured and made again breadwinners and supporters of their families. Thus they are prevented from becoming a burden to the community, and there will be not only a great saving of lives, but also in the end a considerable saving of money to the treasuries of the State and municipality.

There are in all communities people whom it is hard to convince by indirect proofs. To them I desire to say that by treating a consumptive patient in a sanatorium or special hospital, where he has from 50% to 75% of chances of cure, instead of treating him in your general hospital, where his chances of cure, in spite of the best of care, must be considerably less, the Commonwealth saves on each patient $4.00 for every week when treated in a sanatorium.

According to the "Third Annual Report of the Trustees of the Massachusetts State Sanatorium for Consumptives," the weekly cost of maintenance per patient has been $8.40. According to the kind information furnished me recently by Dr. Geo. H. M. Rowe, Superintendent of the Boston City Hospital, the average cost per patient per week last year was $12.40.

To cure the curable patient in a sanatorium or special hospital requires from eight months to one year. The average length of stay of the incurable consumptive patient who enters the hospital,

from the day he is no longer able to work up to the date of his death, is about the same, that is to say, six months to one year. It requires no great arithmetical calculation to show the immense financial benefit which must accrue to the Commonwealth by taking care of the consumptive while still in the incipient stage.

From the same letter, which Dr. Rowe had the goodness to send me, I learned that, as a rule, patients with pulmonary tuberculosis are not admitted to the Boston City Hospital; but, as a matter of fact, in the course of a year they take in a considerable number. Cases of chronic phthisis where there is a hemorrhage or urgent symptoms, or people found in great distress, are brought there for temporary treatment. The charity characteristic of you Boston people allows here an infringement upon the rules of your hospital for humanity's sake; for, in reality, a general hospital is no place for consumptives, no matter in what stage of the disease. What is needed for the treatment of such people, such as large spacious rooms, rest-cure galleries for the open-air treatment, special hydrotherapeutic arrangements for the application of cold water, constant medical supervision, and so on, is not easy to be had in a general hospital.

While I have no doubt that in your excellent City Hospital the greatest care is exercised to avoid possible infection from the consumptive's sputum, so that he may not endanger his fellow patient suffering from typhoid fever, rheumatism or pneumonia, or enfeebled by surgical operations, there still exists the drop infection. Small particles of bacilliferous saliva may be expelled by the patient passing through the ward, during the so-called dry cough, sneezing, or loud and excited talking. In short, it requires more special care to prevent a consumptive from doing harm to his fellow patients and to himself than can be bestowed upon him in a general hospital. At night, when the consumptive patient in the ward of a general hospital would like to have his window open, the rheumatic neighbor might object, and in revenge the untrained consumptive might keep the whole ward awake with his cough.

To those of my hearers who are not familiar with the treatment of consumptive patients in a sanatorium or special hospital, I wish to add here for explanation that the consumptive in such institutions is only allowed to cough when he has to expectorate, at all other times he is taught that coughing without expectoration is not only useless and harmful, but also impolite. But, besides this discipline of the cough, the patient in the sanatorium learns a great many other things. He is taught that he must be religiously clean and careful with his expectoration and other secretions, and that any willful violation of the rules and regulations concerning the sputum means immediate dismissal from the institution.

Patients in the sanatorium are trained how not to take cold, what to do in the case of this or that accident which may befall them during the course of the disease, what to avoid and what to do in order to continue on the road to recovery. The regular life which the consumptive leads and the hygienic training which he receives in the sanatorium are of inestimable value to himself, to his family and to the community. If completely or if only partially cured from his disease, this former inmate of a sanatorium will constitute a hygienic factor among his neighbors and friends on his return home.

There is one more benefit derived by the community, and also individuals, from the sojourn of consumptives in sanatoria, which has thus far not been highly enough estimated in this country, but which has been frequently observed and appreciated in Europe. The consumptive persons addicted to the abuse of alcoholic beverages have to lead, when they become inmates of a sanatorium for tuberculous patients, such regular and sober lives that with the improvement of their functions of nutrition and assimilation, one of the essential factors of the sanatorium treatment, they will very often reform, and on their discharge from the sanatorium will not only have regained their health and vigor, but also have become morally better men and women by having lost their desire for strong drink.

The physician in the sanatorium for consumptives is the close friend, advisor and educator of all his patients, and the modern sanatorium for the treatment of consumptives (poor and rich) must be, and is, a school of hygiene.

Let those who still doubt the need of more institutions in your city and State, or who claim that the American patient does not like sanatorium life with its discipline, as do patients in European sanatoria, read the latest report of Dr. Marclay, superintendent of the Rutland Sanatorium, wherein he says: "There have appeared, from September, 1899, to September, 1900, for entrance examination, 1,233 applicants, of whom 69% have been rejected because there were no prospects of immediate vacancies or because of too advanced condition of the disease."

It is not impossible that in your city or in your State there will be, and I have found them nearly everywhere, people who object to the establishment of a sanatorium or hospital for consumptives because they live near or have property in the vicinity of the future institution. To those who fear contagion from a sanatorium I will simply say that if they desire, I will be able to furnish them with official statistics for over fifty years, whereby it is conclusively proven that, since the establishment of sanatoria for consumptives, the mortality from tuberculosis among the villagers of Gœrbersdorf and Falkenstein, the two places where five of the most flourishing German sanatoria are now existing, has actually been decreased to one-third of that which it was before the establishment of the institutions. The explanation for this remarkable decrease of consumption in the villages of Gœrbersdorf and Falkenstein is simply to be sought in the fact that the villagers imitated voluntarily the clean habits which were obligatory for the sanatorium inmates.

To those who fear a depreciation of their property because poor consumptives will come near it, I will relate the following anecdote which happened a few years ago: Near Vienna existed a place which had been known for years as a health resort for consumptives and persons suffering from similar troubles. Thanks to the efforts of a distinguished professor and specialist in phthisiotherapeutics, and the funds given by wealthy philanthropists, it had been decided to found a sanatorium for poor consumptives, under the direction of this professor, in the resort mentioned. But the authorities of the community raised such an outcry at the prospect of having this institution in their midst, fearing it would drive away the class of wealthy patients who had come there for so long, that the professor, not wishing to go where his sanatorium would not be welcome, chose another locality. They thought they had done a wise thing; but soon the wealthy patients, thinking that the new place must possess superior advantages to have been chosen for his institution by so celebrated a specialist, began to flock thither, and the old resort, so favored for years, found itself quite deserted.

Besides the one or two city hospitals which you are going to have, and the second State sanatorium, you should have an especially constructed building which should serve as a large dispensary and reception hospital for tuberculous patients, from whence the cases for the city hospital or State sanatoria should be selected. Furthermore, I must plead with your city and State authorities to create, at not too great a distance from your city, and near the seashore, a sanatorium for the treatment of scrofulous and tuberculous children. If one considers the very large percentage of scrofulous and tuberculous children among the poor, it is simply surprising that the many wealthy communities along the seashores of this great country have not long since established sanatoria for these unfortunate little ones. It is a well-known fact that a seacoast climate, in connection with good food and treatment, acts almost as a specific in the treatment of scrofulous and tuberculous afflictions in childhood.

In France, Holland, Germany, Italy and the Scandinavian countries, there have existed for years a large number of seaside sanatoria for the exclusive treatment of tuberculous and scrofulous children. The results obtained in these institutions, which include surgical tuberculosis as well, vary from 60% to 75% of complete recoveries. To many excellent schools are attached, so that the children's general education is not neglected. That such children's sanatoria are most essential factors in the solution of the tuberculosis problem is evident, when we consider that they have both the mission of prevention as well as of cure.

Lastly, I desire to ask of the managers of your maternity hospitals to set apart the best-lighted and best-ventilated wards and rooms for the exclusive treatment of tuberculous pregnant women. To begin the hygienic and dietetic treatment, as far as it is practicable, in such an institution and as long as possible before the confinement, and to see that it is continued afterwards at least for a year in a sanatorium or at the home of the mother, will save many a life.

Having now all our institutions, let us see what plan may be formulated in order to cope intelligently, practically, and with the hope of the greatest possible success, with the tuberculosis problem in your city and State. The first thing to be done would be to form a tuberculosis commission. This commission should be composed of physicians in the employ of the city, of sanitary officers, officers of the charity organizations, and of friends of the poor from the well-to-do of your good city, of which my friend, Dr. Edward T. Devine, editor of *Charities*, has spoken so eloquently. This commission would have its headquarters in the city dispensary for tuberculous patients. Its work would consist: Firstly, in determining the applicant's condition by a medical examination. If his condition demands it, he should be immediately placed in the reception hospital or assigned to one of the dispensary classes for treatment. Secondly, in the meantime the members of the tuberculosis commission on duty should visit the home of the patient and institute such hygienic measures as seem necessary to prevent further contamination. Thirdly, the medical member of that commission should examine the other members of the family in order to find out if any of them have also contracted the disease, and if so, counsel proper treatment. Fourthly, the commission will then make a full report to the sanitary authorities as to the condition of the patient's dwelling. Its thorough disinfection, renovation, or even destruction may become imperative when it is evident that tuberculosis has become endemic there owing to the continued residence of tuberculous invalids, the condition of the soil or other sanitary defects. Fifthly, the commission, the laymen of which will, of course, be drilled, so to speak, in the prophylaxis of tuberculosis, will have become real sanitarians, must help the doctor by distributing literature and by verbal advice to teach the families they visit the essentials of prevention of tuberculosis and hygiene in general. Lastly, the commission, being in touch with all the charity organizations of the city, will determine the financial condition of the applicant to the dispensary, special hospital or sanatorium; for we must not encourage abuse of medical or any other charity. If he is able to pay he should be made to pay; if he is poor, by all means extend to him the full benefit of charity. Nay, even if, by his being taken to an institution, the family should become destitute, it would be the imperative duty of the commission to see that the remainder of the family be protected from want by either public or private philanthropy. A letter of inquiry sent to the former physician of such a patient, if he has had one, might often aid the work of the investigating commission. Of course, it goes without saying that every member of the medical profession will be helpful in this work

by referring needy tuberculous patients to the investigation committee.

This, Mr. President, members and friends of the Suffolk District Medical Society, is all I have to suggest, and it only remains for me to wish you all God-speed in the work of combating one of the greatest scourges of the age, which was so justly called by your own Oliver Wendell Holmes, "the great white plague." You have done, already, more than any other State in the Union; there are prospects that, ere long, you will have done more than any other city in the Union, and I feel confident that it will be within your own borders that tuberculosis as a disease of the masses will first disappear.

Clinical Department.

ECHINOCOCCUS OF LIVER WITH PERFORATION INTO THE LUNGS AND BRONCHI.

BY WILLIAM F. GAY, M.D., BOSTON.

THE comparative infrequency of cases of this nature occurring in this country seems to be of sufficient importance to cause me to report the case briefly, although I have nothing new, perhaps, to offer, except what may be found embodied in the current literature of the subject by the various authors on medical practice, and bearing out the idea that symptoms of this disease are rarely prominent and may be so marked by intercurrent diseases, as in my case, that an absolute diagnosis is not possible until a rupture occurs, and the characteristic cysts and hooklets are demonstrated.

On January 10, 1901, I was called to see Angelo T., male, Italian, four years in America, age twenty-five, barber. On account of his inability to speak much English, I could only elicit the following as to his past history: Always ailing, more or less, up to fourteenth year, with cough, fever and general weakness. Then fairly well until his twenty-third year, about October or November, 1898, when he was operated upon in Boston City Hospital for (dropsy?). The scar showing a median laparotomy. History of slight attacks of hemoptysis, and more or less pain constantly in dorsal region. About December 1, 1900, he became quite ill, much cough, with blood streaked expectoration, headache and anorexia and marked debility, chills and moderate fever, with pain in the lower right side of chest.

On date of my first visit I found the patient much prostrated; emaciation moderate, face showing a dusky pallor, tongue heavily coated, temperature 100.8° F., pulse 98, and respirations 30 per minute; bowels constipated. The physical signs showed diminished respiration, crepitant and subcrepitant râles, slight dulness at base of right lung, small mucous râles and crackling at both apices with sinking in of the supra clavicular spaces, with dulness slight over both apices and jerky respiration. The dulness at base of right lung increased, bronchial breathing, rusty sputum and rising temperature, with other symptoms, pointed to a right lower lobar pneumonia, with coexistent phthisis pulmonalis.

The pneumonia followed the usual course, and at the end of January the patient had recovered from it and was up and about, the lower right lung having cleared up, the other portions remaining about the same. At this time my attention was attracted to the liver, which was slightly painful and gradually enlarging.

During February the patient continued to gain strength, the appetite increased, and, save for a peculiar pallor and the liver enlargement, there were no noteworthy symptoms.

March 1st, I was called to see patient on account of several attacks of hemoptysis the previous day, and found him with much cough and bloody expectoration. Under treatment the hemorrhages ceased in a few days and the expectoration became viscid and white. The lungs showed a general acute catarrhal condition with a multiplicity of râles of all kinds. The liver at this time, however, showed considerable uniform enlargement, very firm and smooth and appreciable to the eye. The right lobe extended on a line about two and one-half inches above the umbilicus, the left lobe well into the left hypochondriac region; considerable abdominal tympanites, raised surface temperature, much pain on coughing, bowels inclined to constipation and feces clay-colored, fetid and pasty. There was, however, no jaundice, other than a peculiar pallor which could be called dusky, anxious expression, pinched features and cold sweats. Temperature 101°, pulse 120, respiration 32, with occasional attacks of stupor.

This train of symptoms continued for about a week, the breathing became labored, the liver more painful, and on March 13th had reached the maximum. Temperature was then 101.2°, pulse 134, and respiration 40. On March 14th the patient had several vomiting spells, the matter ejected being of a bright yellow color, suggesting bile. The expectoration became more copious and of bright orange color, and in a few days the temperature declined to about 99°, the breathing became less labored, the liver softer and decreasing in size, and the general condition, from being alarming, slowly improved.

The diagnosis of a perforation from the liver into the lungs and bronchial tubes was made, although I was at a loss to understand the exact condition of the liver giving rise to it, as the substance raised was not fetid nor pus-like, and the bright orange color was something I had never seen nor read about. Finding a small fragment of a whitish hyaline membrane in the sputum caused me to suspect hydatids, and, upon close search of the sputum every day, I was soon rewarded by finding an entire cyst about the size of a pigeon's egg. The expectoration of the cysts then became more common, and from one to ten per day of various sizes ranging from a pea to a pigeon's egg. A diagnosis of echinococcus was made, and upon submitting several of the cysts to

F. B. Mallory, M.D., pathologist at the Boston City Hospital, was kindly confirmed by him, he finding the characteristic lamellated cyst structure, daughter cysts and scolices, the orange color being due to crystals of hematoidin.

April 10th. The patient at the present time is holding his own, the expectoration is decreasing in amount, the orange color is disappearing, the temperature remains about 99°, having touched normal once or twice, although the pulse rate still remains at from 110 to 120, seemingly uninfluenced by the undulations in temperature. This strain on the heart, together with the general phthisical consolidation of the lungs, will probably prove the fatal factors in the case.

The main points of interest in the case, as I have tried to show, is the fact that intercurrent disease fully met all the prominent symptoms, and prevented a positive diagnosis until rupture occurred and the cysts were microscopically demonstrated, the temperature never reaching above 101° F., except during the pneumonia, when it reached 102°, the high pulse rate, uninfluenced by the temperature, the peculiar orange-colored masses in the sputum, the absence of pleuritic involvement at the time of perforation, and the presence of the cysts.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 20, p. 476.)

DR. J. P. CLARK gave an exhibition of a

CASE OPERATED ON FOR EXAGGERATED ROMAN NOSE.

The patient whom I have to present shows the result of a cosmetic operation on an exaggerated Roman nose. The photographs and plaster casts, which I pass around, show the appearance of the nose before and after operation. The credit of devising this method of operating in such cases belongs to Dr. Goodale, and he has reported 1 case.[2] The operation, as I performed it on my patient, was as follows: A pair of short curved scissors was introduced into the left nostril. One blade was made to perforate the septum just beneath the lower end of the prominence which I wished to remove. Then, with the convexity of the scissors uppermost, the septum was freed from the prominent portion of the nose, following as closely as possible the outline of the prominence. The extremities of this curved cut were then connected by a straight cut with a pair of straight scissors and the loose piece of septum removed with forceps. Next, a small nasal saw was introduced into one nostril and the nasal bone was sawed through as nearly as possible at its junction with the nasal process of the superior maxilla, care being taken not to injure the skin. The same thing was done to the other nasal bone. Now, using the padded handle of a tongue-depressor as a pleximeter to prevent bruising the skin, a few gentle taps with a small mallet on

the nasal bones sufficed to break the frontal articulation and depress them, still firmly united with each other, until they came into contact with the upper margin of the septum, the sawed edges of

the nasal bones sliding down inside the nasal processes of the superior maxilla. The right nasal

[2] See Boston Medical and Surgical Journal [of February 2, 1899.

process of the superior maxilla was now seen to be too prominent. A gentle blow on this, using the same plexímeter, easily fractured it, and an even, symmetrical surface was obtained. The nose was held in the desired position by means of suitable pads and a bandage for two weeks. By this time the bones were sufficiently firmly united to dispense with any splint. The interior of the nose now shows no evidence of any operation, in fact, the nasal cavities appear perfectly normal.

DR. C. B. PORTER reported several cases of plastic operation.

PLASTIC OF HAND.

B. McL., age twenty-three, single, burned her left hand in a mangle July 30th, was treated in the Out-Patient Department for three weeks, thence referred to House for Grafting on August 20th.

Operation August 22d, by Dr. Balch, when the palm was attached to a flap reflected from the abdomen. This flap covered the palm and overlapped the first phalanges of four fingers. The flap was freed from the abdomen September 4th, twenty-three days after.

Discharged September 18th.

Re-entry December 13, 1900, for superfluous fat in skin-flap, operation December 18th, when the fat was dissected from beneath the skin.

Discharged December 24th.

Re-entry January 8, 1901, for cicatricial contraction of the fingers. Operation, January 10th. Here the web between the fingers was removed by a plastic operation.

Discharged January 28th to seats.

PLASTIC OF ARM.

W. T. D., age five years, on June 6th received severe burn of anterior surface of left arm and forearm to shoulder. Treated in Out-Patient Department for two weeks and admitted to house June 23d for skin grafting. This was done July 2d and August 7th.

Discharged September 7th. Treated in seats for granulations of arm.

Re-entered November 17, 1900, for cicatricial contraction of elbow. Only 10° of motion, that is, flexion to a right angle. Extension 10° above right angle.

Operation December 15th, plastic of skin from abdomen to arm, etc. Operation January 4th, separation of flap from abdomen.

ENTEROPTOSIS.

J. Q., age forty-two years, married.

Entry January 1, 1901. Married twenty-two years, seven children. Lump in right abdomen seven or eight years ago, lasted one year. Tumor reappeared later and grew steadily for four years as a hard lump in the right side. At the end of this time was pregnant and delivered a nine months child. Three hours after birth of child this mass was delivered, the size of a baby's head. Shortly after, the tumor reappeared for the third time, and has been there ever since.

Operation on January 12th for radical cure of enteroptosis.

Discharged February 4th for treatment of heart disease.

DR. ELLIOT: Apropos of the young lady who had the accident with the mangle, two or three years ago I had very much the same sort of person as this who had her hand caught in a mangle. One roller in the mangle is hot and the other cold. The back roller is the hot one, and it took everything off the back of the hand down to the bone. I waited to see what could be done about it, and finally it cicatrized and, to my surprise, that is a a perfectly useful hand; though the extensor tendons were gone, the cicatricial tissue took the place admirably.

DR. J. M. JACKSON showed

A CASE OF MYXEDEMA AND ARRESTED DEVELOPMENT.

The patient, although nineteen years old, has the appearance of a girl of eleven. She is 50 inches tall and weighs 72 pounds, and one's first impression on looking at her is that she is a cretin, but on talking with her it is soon evident that she is a bright girl, though a little slow.

Her history is briefly as follows: A negative family history, except a possible specific disease in mother years ago. She had measles, chicken pox and whooping cough as a child. Began school at five years and graduated at fifteen years from grammar school without ever missing a day. Was a good scholar and stood well at school. Has since learned stenography and typewriting, though she is not very proficient as yet. She grew and developed like other children up to the age of eleven, since which time there has been no further growth. The mother says that the child used to have a high forehead, but that her hair has gradually encroached upon it, until, as you see now, the forehead is low and wrinkled. The teeth came in regular order except the eye teeth, which are just now erupting. The catamenia appeared last December for the first time.

Physical examination. — Undeveloped, but well nourished, muscles well developed. Height, 4 feet, 2 inches; weight, 72 pounds. Skin and mucous membranes of good color. Hair coarse and dry and comes low down on forehead; forehead wrinkled. Expression intelligent, speech rather slow, intellect clear. Skin dry, scaling and harsh. Thyroid not felt. No pads over the clavicles. Pupils equal and react normally. Epiphyses not enlarged. Bones small but normal. Tongue large, moist and clean. Teeth good, throat negative. No glandular enlargement, no pubic or axillary hair. Chest broad and short, no rosary. Breasts only slightly developed. Lungs normal. Heart, area of dulness normal, sounds regular and of good quality, no murmurs. Pulse slow, regular rhythm, good volume and tension. Abdomen full and rounded, not distended, no tenderness. Liver and spleen not enlarged. Legs long in proportion to the body, but otherwise normal. Knee jerks present or equal. Plantars normal. Marked

flatfoot of both feet. Temperature varied from 97° to 98°. Blood, hemoglobin 62%; whites, 8800. Urine, slightly pale, slightly acid 1020; chlorides normal; albumin, slightest possible trace; sugar absent; sediment slight, a rare squamous cell and leucocyte.

Treatment.—It is too late to expect much from treatment, but on account of the coarseness of hair, dryness of skin, and the greatly retarded development, I have put her on thyroids.

Dr. Fitz remarked that the case shown by Dr. Jackson is suggestive of the possible occurrence of a myxedema of adolescence in contrast to the congenital infantile and adult varieties.

The coarse, dry hair of the head, the absent axillary and pubic hair, and the conformation of the skeleton are what might be expected in a case of infantile myxedema. The low forehead and peculiar profile resemble those of sporadic cretinism, while the juvenile mental development corresponds with that observed in certain cases of infantile myxedema after treatment with thyroid extract.

Anatanical evidence of the condition of the thyroid in similar cases is lacking, but it seems not unreasonable to suppose that atrophy of this structure may be found as the cause of the arrest of development.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Concluded from No. 20, p. 478.)

MESENTERIC CYSTS.

Dowd [19] presents a very interesting paper which he read in part before the New York Surgical Society, December 27, 1899. The following summary is given:

(1) The occurrence in the transverse mesocolon of a multilocular cystadenoma which contained pseudomucin, and which was exactly like the cystadenoma of the ovary, suggests its probable origin as an embryonic ovarian sequestration.

(2) The occurrence of dermoid cysts in a similar position suggests a similar origin.

(3) The occurrence of chylous cysts in the mesentery, which have the structure and appearance of ovarian and parovarian cysts, and which have in their walls lymph vessels, suggest embryonic cysts into which there has been an effusion of chyle.

(4) The sanguineous cysts appear to be preformed cysts into which hemorrhage has taken place; hematomata in the mesentery should not be described as cysts.

(5) The presence of cysts which have the structure of the intestinal wall suggest sequestration from the intestine.

(6) Serous cysts are apparently similar in origin and structure to the cysts already considered. They are usually not situated in the path of the lacteal vessels.

(7) Hydatid cysts form a class by themselves, and are due to the Tænia echinococcus.

(8) Reports indicate that mesenteric cysts are being removed at least as often as once a month. If microscopical examinations of the cyst walls and chemical and microscopical examinations of the cyst fluid are made, the entire subject should soon be understood.

(9) It is probable that all mesenteric cysts may be included in the classifications, (*a*) embryonic cysts; (*b*) hydatid cysts; (*c*) cystic malignant disease.

[19] Annals of Surgery, October, 1900, p. 515.

SUTURE OF ARTERIES.

Dr. Julius Doerfler [20] (Rostock) reports 2 successful cases of suture of arteries performed by Barre. In the first instance, a continuous silk suture, embracing adventitia and media, was applied laterally to the internal carotid injured in the course of the extirpation of carcinomatous glands. Result: Primary union; but at the post mortem, three months later, inspection of this vessel was overlooked (?).

On a second occasion, for a traumatic aneurism of the brachial, four interrupted silk sutures penetrating the intima were applied to the wound of the brachial, embracing half of the anterior circumference of this vessel. Result: Primary union; pulsation in the radial and ulnar weaker than the opposite side, and a distinct pulsation was visible below the site of suture.

These 2 cases bring the number of successful artery sutures recorded in literature up to 9. No failures have at least been published.

Experimentally, the author has determined that an aseptic thread jutting into the lumen does not cause any interference with the patency of the vessel; therefore he sees no danger in having the suture penetrate all the coats of the vessel. Any oozing from the needle punctures not controllable by pressure can be mastered by suture of the vessel sheath, or by covering it with an adjoining

[20] Annals of Surgery, November, 1900.

slip of muscle or fascia. Wounds of greater extent than half the circumference call for the Murphy invagination method.

Indications for suture are: Accidental wounds, stab, gunshot, or lacerated wounds; injuries inflicted during operation; traumatic aneurisms. Rigid asepsis is a requisite for successful suture; therefore an infected wound offers no field for this procedure. Whereas the skin incision should be free to gain access to the vessel, the sheath should be spared as much as possible, and the vessel itself subjected to as little stretching as possible. To render the vessel free from blood, proximal and distal pressure digitally is to be preferred; this failing, strips of gauze or forceps covered with rubber have to be used. Cambric needles armed with silk proved most useful for suture. Twelve experiments on animals performed with these precautions proved successful.

The Murphy method of invagination is indicated when more than half of the circumference is implicated, or when the laceration is extensive, or when traumatic aneurisms are not amenable to ordinary suture, or when a vessel has to be resected in the course of removal of new growths.

The author is wholly in favor of the invagination method as based on the successful outcome of his animal experiments and the three successful results in man. A particularly grateful field is augured for this method in aneurisms.[21]

THE TREATMENT AND PREVENTION OF CONTRACTION OF THE KNEE JOINT.

Carl Bruns[22] has relieved 3 cases where contraction of the knee following injury or inflammation caused great functional disability and pain by transplanting the flexor tendons of the thigh (biceps and semitendinosus) with the quadriceps femoris. He considers that it is not the capsule, fascia or skin that causes the contraction, but the muscles. The first patient was a child, eight years old, where the contraction followed septic arthrosis during infancy, and where a resection of the joint had been unsuccessful. The result at the end of five months showed a straight leg, and the patient could walk without pain. Before operation, when the stiff bandages were removed, the knee after a few days became flexed to 60°. In the other case the joint condition was the result of a nine-months' attack of gonorrheal arthrosis which resulted in the marked tendency to contraction and pain in walking. Unrelieved by bandages, apparatus, extension with anesthesia, etc. Relieved after a few weeks by the above-described treatment. The third case was the result of chronic articular rheumatism of several years' standing with 50° contraction. Patient bedridden. The writer claims that the method is one which can be satisfactorily substituted for resections in many cases.

TREATMENT OF INJURIES TO THE KNEE WITH HEMARTHROSIS.

C. Lauenstein,[23] after reviewing the various forms of treatment now in vogue for these cases — (1) "Expectant" treatment with massage and passive motion; (2) "ambulante" treatment; (3) rest, leg raised and ice; (4) immediate puncture of the joint and removal of clots by irrigation followed by fixation — concludes that the patients recover quickest when the joint is freed from blood clots and kept at rest for several weeks in a stiff bandage. That when the tear in the joint capsule is probably healed the patient is allowed to get up and begin motion of the joint. In cases of fractured patella he would evacuate the joint before applying the other dressings. He claims that this is the most rapid way of getting rid of the blood clots and placing the rent in the capsule in a favorable position for its union.

[21] Beitr. zur klin. Chir., Bd. xxv, H. 3.
[22] Centrbl. f. Chir., 1901, Bd. xxviii, S. 159.
[23] Centrbl. f. Chir., 1901, Bd. xxviii, S. 153.

STATISTICS OF ONE HUNDRED CASES OF CANCER OF THE BREAST AND THE RESULTS OF OPERATION.

McWilliams, of New York, has given the statistics of 100 cases of cancer of the breast in a paper which appeared in the *Medical News*, April 28, 1900, p. 644, and he gives the following summary: Trauma present in 44.6% of the cases; married, 74% of the cases; children born to 66.6% of the cases; average number of children to each, 5; pain present in 56.2% of the cases; nipple retracted in 45.2% of the cases; right breast involved in 51 cases; left breast involved in 49 cases; axillary glands palpable in 48.9% of the cases; axillary glands found cancerous by microscope, 78.6% of cases; average age was forty-nine years, six months, twenty-six days; mortality of operation was 4%; average length of time in hospital, twenty days; prolongation of life for one year, 59%; prolongation of life for two years, 36%. Cured (no recurrence at end of three years), 34%; recurrence took place in one year in 21 cases; recurrence took place in two years in 28 cases; recurrence took place locally in 15 cases; recurrence took place in lung in 6 cases; average length of time in recurrent cases from operation to death, one year, two months, twenty days; average length of time from period of recurrence to death, five months.

THE VALUE OF PEDICLED FLAPS IN INJURIES OF THE HAND.

Dr. W. E. Schroeder[24] gives the following:

The injuries met with in the hand which result in the destruction of the skin and subcutaneous tissues, leaving the tendons and all or some of the bones and joints intact, may in many instances be repaired by judicious treatment. These injuries are commonly produced by various kinds of machinery and by burns and frostbites.

Amputation is freely resorted to in contused lacerated wounds of the hand, whereas burns are usually allowed to get well of their own accord; that is, plastic operations are not often performed. It is for such cases that the pedicled flap method is to be recommended.

Elasticity and resistance are required of the skin in the palm of the hand, and neither one of these conditions is furnished by the Thiersch or

[24] American Journal of the Medical Sciences, July, 1900.

free-flap method, although both of these methods may be used successfully on the dorsal surface of the hand. Enderlen, in his article, has shown that in Thiersch's graft the elastic fibres all die, and that only a very thin layer of epithelial cells remains. It is also insufficient because of the ulcers that form when the hand is used. He also cites cases where free flaps were used and the microscopical examinations of specimens showed that parts of them died, resulting in the formation of connective tissue. The author, with Dr. Fenger's permission, reports a case of this kind. He placed a free flap over the metacarpal bones from which the fingers had been removed, and found that in time the flap shrank decidedly, and when the stump was used small blisters formed, resulting in ulcers. Microscopical examination showed a considerable increase in quantity of connective tissue. It finally became necessary to replace this with a pedicled flap, which terminated favorably.

Where one desires simply to cover the palm, dorsum of hand, or the palmar surface of the thumb, flaps may be taken with freedom from the chest or abdomen. Where the palmar surface of the fingers has been destroyed, it is much better to have double pedicles, and these can best be obtained from the hip. Furthermore, this position is reasonably comfortable. I would say, however, that in young and old patients such a procedure would be very trying and scarcely justifiable.

Summary.— Advantages of this method: (1) Mobility; (2) elasticity; (3) certainty of taking.

THE CARDINAL PATHOGNOMONIC SIGN OF FRACTURE OF THE LOWER END OF THE RADIUS (COLLES).

Ware [25] calls attention to an old sign of Colles's fracture, which he considers the cardinal pathognomonic one. It is the sign of Langier, which he has found reliable in diagnosing 300 cases of fracture of the lower end of the radius that have come under his observation.

This sign is based on the relation of the ulnar and the radial styloid. The styloid of the radius is at a lower level than the styloid of the ulna. This is always the case, normally differing in degree according to the development of the bones, being more marked in males than in females, less so in infancy. With the hand in the prone position and on the same plane with the bones of the forearm, this sign is most readily ascertained by then impinging the thumb and index finger against the styloids, and projecting a line between the two points, it will take an oblique course slanting to the radial side.

An estimate of the existence of the levelling or elevation of the radial styloid should be the first maneuver in ascertaining a fracture, thus precluding any further manipulation until reduction is performed. It would suggest itself that this relation of the styloids ought to be an index to proper reduction; this is but relatively so, as an absolute restoration of the normal relation of the styloid is impossible in the greater number of instances. The presence of an altered relation in an old case indicates an old fracture.

[25] Medical Record, March 31, 1900; American Journal of the Medical Sciences, July, 1900.

TREATMENT OF OBLIQUE FRACTURES OF THE LEG.

N. Kæfer, Odessa, has treated oblique fractures of the tibia with marked shortening and marked tendency of the fragments to displacement by accurately applied plaster-of-Paris bandages and an especially devised apparatus for producing extension. The apparatus consists of a round iron rod of the thickness of a lead pencil, one end of which is cut with a right, the other with a left hand screw thread. Its centre has a nut-like projection. The rest of the apparatus consists of two pieces of metal, 10 cm. long and 1.8 cm. wide. One end of each is thickened and is bored so as to leave a hole 2 cm. long, into which the end of the first described rod can be screwed. The remaining surface is left rough. Kæfer's method consists of applying a bandage of plaster-of-Paris to the leg from the toes to above the knee. It should fit accurately, especially below the tibial tuberosities and above the malleoli. When nearly hard it is cut through transversely round the leg at the point of fracture. The parts of the apparatus bearing the female screw are placed on the edges of this cut, one on the upper half, one on the lower, and fastened in place by a few circular turns of stiff bandages. The rod is then fitted into the holes at the ends. When the bandage is hard by turning the rod, the cleft of the bandage is gradually widened and the leg extended. This extension is made gradually a little daily till the shortening is overcome. The apparatus is usually placed on the anterior surface of the leg. In one case reported, the upper half of the bandage was separated from the lower by the screw apparatus, a distance of 5 cm. in a few days. In the original article [26] a detailed description and illustration shows accurately the above-described appliance. The writer claims that his clinical experience shows that his apparatus has been a very efficient aid in the treatment of this difficult class of fractures and also in osteotomies.

STERILIZATION OF SPONGES.

C. A. Elsberg [27] claims to have found a method by which "reef" sponges can be sterilized by boiling without the deleterious effects which such a process usually produces with such substances. It is the following:

(1) Soak the sponges for twenty-four hours in an 8% solution of hydrochloric acid to remove calcareous substances and coarse dirt; (2) wash thoroughly in water; (3) boil five to twenty minutes in a solution of caustic potash 10.00, tannic acid 20.00, water 1000.00 —; (4) wash in sterile water or carbolic or sublimate solution until the dark brown potash-tannic acid solution is entirely removed; (5) keep in 5% carbolic solution.

This method, it is claimed, leaves the sponge with its original porosity, softness and elasticity

[26] Centrbl. f. Chir., 1901, Bd. xxviii, S. 1.
[27] Centrbl. f. Chir., 1900, Bd. xxvii, S. 7289.

even after repeating boiling of periods of one hour duration. Also that the same solution of caustic potash and tannic acid can be repeatedly used if the amount of evaporated water is replaced.

Sponges infected with staphylococcus aureus, streptococcus pyogenes and anthrax bacillus have always been found sterile after this method. Elsberg calls it a certain and simple method.

ON SURGICAL DISINFECTION.

Ochsner[28] describes the methods of surgical disinfection employed at the Augustana Hospital, Chicago. The following conclusions give a summary of his views:

(1) *a.* Theoretically it is almost impossible absolutely to disinfect the skin of the patient and the hands of the operator; *b.* practically it is one of the easiest and simplest tasks to obtain a degree of surgical cleanness that will insure primary wound-healing.

(2) *a.* Theoretically strong chemical disinfectants are indicated for the purpose of disinfecting the hands; *b.* practically careful washing with the mildest, namely, soap and water and alcohol, is absolutely sufficient and very much safer for the patient, because hands roughened by the use of the strong antiseptics are much more likely to become hopelessly septic than hands which are covered with smooth, healthy skin.

(3) *a.* Theoretically it is extremely simple to keep the hands aseptic after they have been rendered so; *b.* practically there is no more difficult task in any clinic than to keep all interested hands clean after they have been disinfected.

(4) *a.* Theoretically sutures passing through the skin and the deep tissues underneath are a menace to the patient, because they form a direct communication between the skin which contains staphylococci and the deep tissues which are primarily sterile; *b.* practically these stitches never cause an infection unless drawn too tightly, in which case the resulting pressure necrosis is the cause of the mischief, because it furnishes these micro-organisms dead tissue to thrive upon.

(5) *a.* Theoretically catgut sutures and ligatures are objectionable; *b.* practically, if applied properly and not tied too tightly by a clean surgeon with clean assistants, they are absolutely satisfactory and not objectionable.

(6) *a.* Theoretically, it is as safe to operate upon clean cases after dressing suppurating wounds as at any other time; *b.* practically, surgeons who follow this practice always have a great amount of wound infection on account of accidental contamination of something coming in contact with the wounds.

In order to have wounds heal without suppuration, he believes the following conditions should be considered:

(1) The surgeon, his assistants and nurses must be habitually clean, and the skin of their hands must be free from irritation and roughness.

(2) Their attention should constantly be directed towards the prevention of accidental infection.

(3) The surgeon and his assistants should be careful not to breathe or speak into the wounds.

(4) Tissues should not be exposed to unnecessary traumatism.

(5) Sutures should not be tied tightly enough to cause pressure necrosis.

(6) A reasonable system should be employed, so that everyone concerned can assist intelligently in preventing infection.

[28] Chicago Medical Recorder, February, 1900; American Journal of the Medical Sciences, May, 1900, p. 595.

EXPANDED METAL A NEW SPLINT MATERIAL.

Hübscher[29] calls attention to this new building material as valuable and convenient for making splints. It can be made of any metal, as aluminum, and with metal shears is easily cut into any desired form. The open, lattice-like form of the metal makes it yield readily and conform to the contour of the limb, and yet when bound in place it is very rigid. In dressing a leg the foot piece is made by cutting the metal transversely nearly half its breadth on each side; it is then turned up along the sole of the foot, the cut ends interlocking into the leg portion of the lattice work. Angular splints of great rigidity are made in this way for any portion of the limbs or body. When combined with plaster-of-Paris this splint produces exceptional rigidity, and yet can be made much lighter than a splint made in the ordinary way of plaster.

PAIN AS A PATHOGNOMONIC SYMPTOM OF ECTOPIC PREGNANCY.

Coe,[30] in a paper read at a meeting of the Harvard Medical Society, January 27, 1900, summarizes his views as follows: Pain alone, when not accompanied by a clear history of menstrual irregularity, symptoms of pregnancy, and the presence of a tumor at the side of the uterus or in Douglas's pouch, known to be of recent development, is pathognomic of extra-uterine pregnancy only under certain conditions, namely: The pain is of a sharp, colicky character, distinctly localized on one side, attended with faintness more or less marked, and is usually followed by intervals of hours or days of complete remission. The pulse is accelerated during the attack, but there is no rise of temperature. The latter is an important symptom distinguishing ectopic from inflammatory conditions. The violent tearing pain attending intraperitoneal rupture is accompanied by the unmistakable evidences of internal hemorrhage. In extraperitoneal rupture the symptoms vary in severity according to the amount of blood lost, but soon subside, being succeeded by the usual evidences of pressure resulting from a mass in the folds of the broad ligament which displaces the pelvic organs. A persistent pain following the acute attack may indicate localized peritonitis.

[29] Centrbl. f. Chir., March 3, 1900; American Journal of the Medical Sciences, July, 1900.

[30] Medical News, April 21, 1900, p. 601.

A REMOVABLE DEEP SUTURE.

Schoemaker [31] describes a simple removable suture which overcomes the difficulties which have surrounded the employment of non-absorbable materials in uniting abdominal wounds layer by layer. It is nothing more nor less than the chain-stitch sewing of the older machines. A needle is employed having the eye in the point. It is carried through both sides of the wound and the loop caught. Without unthreading the needle it is withdrawn and the second stitch taken. This time, and on each successive stitch, the loop is carried through the last loop, thus locking it. The final stitch is carried out through the skin and the end pulled through the loop. When it is to be removed the end is withdrawn from the last loop by pulling on the thread, each successive loop is drawn out, and the whole thread is thus released. The thread can be drawn very tight without interfering with its removal, but rather facilitating it.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

Regular meeting, April 17, 1901, Dr. V. Y. Bowditch in the chair.

Dr. S. A. Knopf, of New York, read a paper upon

MUNICIPAL CARE OF THE CONSUMPTIVE POOR.[1]

Dr. Knight: I certainly think we are very much indebted to Dr. Knopf for taking the trouble to come on here and help us out in our effort to make some headway, as I think we have already begun to do, against this great scourge. What Dr. Knopf has said certainly does not call for criticism, but only for commendation. I am very glad, however, to have this opportunity, after making a few comments on topics which he has suggested, to give my experience before our legislative body, particularly in behalf of the institutions for which I have appeared. Before I do that, however, I will say, in the first place, in regard to Dr. Knopf's statement that we have undertaken the most difficult task of all in setting up a hospital for the chronic cases, in undertaking to care for that class of consumptive patients, that this is true. It is a task of enormous magnitude and incapable of complete accomplishment. In the same way it seemed in the beginning, when the infectious character of the disease was first admitted, too big a problem to attack. But, although we cannot do at once all we strive for, we can accomplish a great deal, and that is very well shown in the statistics, particularly of German cities where they undertook the thing more seriously and earlier than we did. For instance, in Berlin in ten years after the adoption of very elementary regulations the mortality was diminished one-third. That is a tremendous gain. I don't believe the disease is going to be extinguished, but if we can make any such change in the mortality rate as that, it will be worth the undertaking.

Another thing has interested me very much. Dr. Knopf does not speak of it here, but does in his book. It pertains to the economic side of the problem, and that is the side which naturally, after the humanitarian, appeals to the legislator. He does not want to appropriate money too freely for the sake of humanity or of philanthropy, but if he finds the economic question favorably affected, he is all the more willing and ready. The point which I refer to is the experience of the insurance companies in Germany, the companies which insure the working people during sickness and make payments after death. These companies quite early became interested in the treatment of tuberculous cases, and began to put them into sanatoria, and they got them in so early that they obtained the best statistics as far as concerned shortness of stay required for cure; and they were so good that some of the companies, as Dr. Knopf states, have set up sanatoria for themselves, so that when their risks are infected with tuberculosis they have institutions in which they can put them for a few months or a year until cured, and then send them back to work. That is a good illustration of the economic value of these institutions for the treatment of the early cases.

In regard to the question of cure. I think we admit here in Boston the ultimate cure of many cases, but it takes a long time. If we should have an autopsy in arrested cases at the end of a year I don't think we would always call them cured by any means. With this idea of cure in mind we are possibly liable to make a mistake in returning cases of arrested disease too soon to their old occupations. I think we must be exceedingly careful about this.

Dr. Knopf speaks of the children. That is a very important point in the attack on the whole question, the treatment of children of consumptives. It is undoubtedly true, as he says, that a seashore home for them would save a very large percentage from developing tubercular disease in the future; so also is the treatment of the pregnant woman very important, a matter which has never

[31] Centrbl. f. Chir., April 7, 1900, No. 14; American Journal of the Medical Sciences, July, 1900.

[1] See page 487 of the Journal.

engaged our attention very much. And in regard to a commission, there is no question about its value. Just think how soon we would have had a commission if acute disease of such mortality had come upon us suddenly — yellow fever or any of those diseases which produce such scares — they would get a commission in a very short time; but this being chronic, we have become so used to it, that a commission never occurs to anybody. But a commission can do as much good or more in the treatment of a disease chronic in its nature as it can one that is acute.

When I first went to the legislature in regard to the sanatorium at Rutland the first thing that struck me was the willingness, apparently, of the committee to give us anything we wanted. The gentleman who had charge of the bill had no idea that he was going to get it through the first year. The finance committee, however, before whom that bill went, seemed to be unanimously in favor of it, and said to me: "You will eventually want more than one — two or three in different parts of the State?" I said: "Certainly, I think so." So it went through. And so it was the next year when we went up on some related question, and again this year, when we asked for a second sanatorium, the committee seemed fully alive to the importance of the matter. This has yet, however, to come before the finance committee. The committee, being business men, I think appreciated the economic as well as the humanitarian side of the question.

In our effort thus far to get a hospital for chronic cases in this city I think it is possible we made a mistake in designating the locality. It is possible if we had simply asked for an appropriation for that purpose and left the selection of site to a board of trustees afterward, it might have been better; but there had been so much talk this year about the expenditure of city money that it seemed rather improbable that we could get a large enough appropriation to build a suitable home, and so we looked around to see if the city owned any buildings which might be utilized without great expense, and we found the old Marcella Street Home in Roxbury which the city owned and apparently had no use for, and, after talking with the Mayor about it, it was understood if we asked for a building for that purpose he would recommend this one, which he did, but the recommendation failed to pass the council for various reasons, partly the opposition of neighbors, and very likely some members of the city government had other ideas in regard to the disposition of this building. There are some members of the city government here who will speak for themselves. I think, as far as I have heard anything about it, the feeling of the members of the city government is that we ought to have something of the kind, that if we ask for an appropriation for this purpose we will be likely to get something, and I hope what Dr. Knopf has said tonight will aid us in accomplishing that object.

DR. E. O. OTIS: I desire to express my appreciation of Dr. Knopf's kind service to us in coming here to give us the results of his most valuable and wide experience upon this all-important question. Surely no one, either in this country or in Europe, could speak with more authority. The whole civilized world is now aroused to the importance of stamping out consumption, and as evidence of this great movement is the coming "Congress on Tuberculosis," in London, under Royal auspices, a programme of which I have here and from which it will be seen that the subject of dealing with consumption is an enormous one.

The State and municipal authorities can and do now legitimately interfere in the matter of prevention. Consumption is a contagious disease, and the community have a right to demand of the authorities that all proper and known means should be employed to protect them from it. Further, as the municipality has assumed the duty of providing decent accommodations and proper medical care for the unfortunate sick poor, it can no longer ignore the large yearly contingent of poor consumptives who now are excluded from all the general hospitals. It is an unjust and cruel distinction of two equally worthy poor patients, to afford one all the benefits of our magnificent City Hospital because he is fortunate enough to have any other disease except consumption, and to relegate the other to the poorhouse because he is unfortunate enough to have consumption. I believe our city Board of Health has wisely put this disease in the list of contagious ones, and requires notification, as with the other contagious diseases; but as a logical result of this ordinance, the city must afford the Board of Health some means of isolating the poor consumptive when it finds he is endangering the lives of those about him. His honor, the mayor, and the honorable city council have taken this matter in hand, and already there is a bill before the city authorities for the appropriation of money to provide a city consumptive hospital. I believe that this will be in the process of accomplishment within the year. In a recent letter received from Dr. Briggs, of the Department of Health of New York City, he writes me that he hopes before the end of the present year to have in that city a consumptive hospital with a capacity of four or five hundred beds. I do not believe that Boston will be far behind New York. Dr. Knopf has elsewhere said that it is his firm conviction that for social and economic reasons the majority of tuberculous patients will have to be treated near their homes. In this opinion I concur, and all the more true is it because the majority of tuberculous patients are poor.

The district physicians of our Boston Dispensary are continually clamoring for some place to send their advanced cases of consumption, both that they may receive proper care and for the sake of the protection of the other members of the household. They will not go to the poorhouse because, from a natural pride, they do not want to die as paupers.

None of us believe that a city consumptive hospital will alone stamp out consumption — better

housing of the poor, better knowledge of how to live and take care of one's health, better sanitary conditions of workshop and store, more air spaces, playgrounds, sand-gardens, open air gymnasiums, fewer saloons, are all very essential factors in this great warfare against tuberculosis. Moreover, we must strive for a wide dissemination of the simple methods of avoiding the tendencies to consumption, and of safely disposing of the sputum of a consumptive.

Regarding the administration of a city consumptive hospital, I believe as Dr. Knopf does, that there should be as careful medical supervision of the patients as in the general hospitals, both in regard to the patients themselves and in order that there may be no possibility of danger to the neighborhood. As Dr. Knopf has shown, a properly supervised consumptive hospital is not only not a menace to the neighborhood, but on the contrary is a benefit to the community by serving as hygienic educators. As Dr. Knopf has said, "Well-conducted sanatoria for consumptives are not centres of infection, but, on the contrary, places where one is safest from contagion."

Another valuable aid in stamping out consumption is the especial ambulatory clinics for tuberculosis, such as now exist at the Boston Dispensary. Here one gets hold of the early cases, instructs the consumptive how to make the most of such environment in which he is obliged to live; how to keep from infecting others, and in many other ways such clinics are most valuable, not only in aiding the consumptive himself, but in protecting the community. Such especial clinics can from their nature, give more careful and prolonged attention to their patients than could be afforded in large general clinics. For example, during the first three months of this year there were 517 new patients at the tuberculosis clinic of the Boston Dispensary, and 1,120 new and old patients. Regarding State sanatoria I think we will all agree that Rutland has been and is of inestimable value, particularly in its educative influence. We shall soon have all over the State patients who have learned the plan of the open-air treatment and who, by example and precept, are teachers of others in wholesome methods of living, and who can show consumptives who cannot leave home how they can make the most of their home conditions. Patients from Rutland are now setting up boarding-houses in Rutland and elsewhere, where consumptives who cannot get into Rutland can go and carry out essentially the same plan of life and treatment as at the Sanatorium.

DR. A. K. STONE: I think we all thank Dr. Knopf for coming and giving us this talk, and also for the very flattering things he said about Boston and the State of Massachusetts. We are always glad to have the flattery, and we hope all he has prophesied will come to pass in the near future.

I was specially interested in what he had to say about the harmlessness of sanatoria. It is a subject to which the public must be educated. We have gone so far in our education of the public that consumption is a dangerous disease to those who come in contact with it, that we have almost produced the belief that a consumptive is a leper. It comes upon him in all directions. The poor man finds he is shut out from workshops and boarding-houses, avoided by friends, and in many ways his life is made very miserable. It seems to me we must swing the pendulum back and say the consumptive is not a dangerous person if he takes care of himself, lives in suitable surroundings, of which sanatoria are by far the most suitable. The medical man and the layman must all be taught that the properly constructed sanatoria are places where disease is held in check, not spread, and that the idea of the hypothetical bacillus that floats away from the walls or surroundings of a given sanatorium and is conveyed for half a mile's distance, is entirely hypothetical and must be disregarded. Even with a consumptive walking about the streets, expectorating on the sidewalk, the chances of the sputum being diluted, washed off, carried into the gutter, are very great, so that even in our dusty streets the amount of dilution is so much that probably the cases of infection from that source are very few in number; but when you come to cars, railway stations, and office buildings, where the material is confined, quickly powdered by the rapidly tramping feet into fine dust, there is a chance for infection; but it is not there even that the greatest chance lies, but in the home where the man is living in a small room, often with a carpet, there the chance of dust infection with him is very great. But where you come to the clean-painted walls, the hardwood floors, with care of himself and constant teaching in the care of his sputum and the general need of cleanliness, and the undesirableness of unnecessary coughing, immediately the disease is held in abeyance, and the chances of its spread are very, very slight. We want to emphasize this just as emphatically as we have emphasized the danger on the other side.

DR. MILLETT: I feel very keenly the compliment paid me in asking me to say a few words, quite as strongly as I feel my inability to speak on the subject. Dr. Knopf kindly mentioned our institution, and certainly after his able paper we must all of us keep very quiet. My own personal experience leads me to say a few words, however, about some of the subjects that have been mentioned. One is that the institution should be small. It seems to me it would be better if every county in the State had some such institution. Patients would be near their homes, could visit their homes when they began to get better, and would be much happier. Another idea is to tell the patient they contaminate themselves with the sputum if not extremely careful. This leads them to be still more cautious, and is kinder than to say they will poison other people. Dr. Otis spoke of the number of hours the patient should be out of doors. It is perfectly easy for a patient to be out of doors twenty out of twenty-four hours eight months of the year. In regard to cough, if they are out of doors eighteen to twenty hours a day

the cough almost wholly disappears and all the other symptoms are ameliorated.

DR. GERRY: I am very much pleased to be present tonight and to hear the discussion. I have been interested for a good many years in this matter of the prevention of the spread of tuberculosis. Two years ago, when I was president of the Norfolk District Medical Society, we tried to instruct the Boston Board of Health in regard to the prevention of tuberculosis, calling on them to fine people, etc., and we found that they had done that. Another idea we brought out was, that all rooms which were occupied by the consumptives, and in which consumptives died, should be just as thoroughly disinfected as those rooms in which people died from diphtheria, scarlet fever and typhoid fever.

I will not touch, particularly, upon the medical side of it, but I would like to say a word regarding the municipal side. There are, of course, a good many things to be considered when the city government begins to think about establishing a hospital, which necessarily must cost $100,000 to $300,000 in its building and be quite a large expense in the matter of maintenance. Those are the two things, as my friend Alderman Norris will tell you, that all committees of the city government have to consider. In the first place, we have the loan bill which comes in the finance committee, and another bill coming in the appropriation committee for maintenance, entirely separate and distinct, and one cannot encroach upon the other. I am happy to be able to say that I think that, not only the city government but the citizens of Boston are not only prepared to do what they can for the tuberculous poor, for their comfort, cure and the prevention of tuberculosis, but they are also desirous — the citizens are — that the city government should do something practical as soon as possible. I was very glad when this matter was brought up as it was in regard to the Marcella Street Home. I did not favor the Marcella Street Home as a hospital for the consumptives of this city. I opposed it because I did not consider it a proper place. It would be well enough if we could not have something better, but I was in hopes and am now, that we shall have something better. I felt that if the tuberculous poor of the city were turned into the Marcella Street Home we should never get any further, or not for many years. When you come to expend $40,000, as I believe the estimate was, for fixing up that old trap, we would have had to get the interest on the money before we could have moved to West Roxbury or Dorchester or any place better, hygienically and every other way. I think I can promise as much as anybody can promise who has to do with the voting of city money or getting votes enough for carrying a loan for any institution, that something will be done this year by the city government to see if we cannot relieve the tuberculous poor of the city of Boston, and put them in a place where they will not only get great benefit themselves, but cease to be a menace to their families and friends.

A remark was made by one of the gentlemen that we should not carry our tuberculous patients too far away from home. That is a very important point. Of course, it may be that the city of Boston may buy land and may establish a consumptives' retreat, we will call it, for the cure — I say for the cure — not only cure, but also, outside of the limits of Boston, the housing of chronics. I am one that believes that we can have two elements in this matter of a consumptive home; that is, properly treat the people who are amenable to cure, and also the people who are unfortunate and who are obliged to be victims of the disease. Now, we know that in our institutions for insanity, for instance, — Pierce Farm and the insane hospitals at Taunton, Worcester and other places, — the poor find it a burden to have the sick member of the family too far away. The car-fare is quite an item to the poor man. Then, again, it costs the poor man his day's labor when he goes to see his sick wife or one of his children. Of course, it is not quite as hard on the wife. I suppose the women do most of the visiting, but still the men like to go once in a while and see the sick friends, and the expense is, naturally, quite a little item; so that we find that Austin and Pierce Farms are very popular as places of retention and treatment of the insane, and made so largely by the fact that the friends of the insane can go there for ten or fifteen or twenty cents, on, perhaps, a holiday or Sunday, when they will not be exposed to losing their day's pay. I, occasionally, have applications from people who think their friends are going to be transferred from Pierce Farm to Taunton and wish them to be retained there, and state as the reason that it is so much handier to go there to see them. I am very glad that this matter is going to come up this year, because I want to take an active part in doing what I can to follow out the suggestions of my old teacher, Dr. Knight, and of the other medical gentlemen of Boston, whom I know very well, and I can assure you that we will do all that we can to secure the establishment of such an institution as you desire.

I agree with one of the gentlemen who said that instead of one large building, two smaller ones or more are better, if that plan can be carried out without too great an additional expense. If it cannot, we shall have to have larger buildings and do the best we can.

I am very glad of this opportunity to say my word, and I think you will be able to look to me to do what I can to help this matter forward.

MR. O'TOOLE: I do not know that there is much that I can say, speaking from the standpoint of a layman only whose interest lies in conquering as much as possible this disease, consumption. The first of this year I introduced an order in the city government for a municipal hospital for the care of incurable cases of consumption. The order asked for the loan of $400,000, and was referred to the finance committee. About the same time a committee, composed of the medical men of Boston, and I talked over the subject, and it

was proposed that we try to procure the Marcella Street Home for a consumptive hospital, and while I feel we may have made a mistake in so doing, I think our efforts were not wholly lost, for the educational work and the interest aroused through newspaper agitation were of great benefit to the community in enlightening them in reference to this disease. I feel, as a member of the city government, that this year we will get something in the way of a municipal hospital. Of course we may not be able to get a loan order of $300,000 or $400,000 through, on the plea of economy; but, inasmuch as the city government is thinking of appropriating $100,000 for a municipal zoo, I think it ought to be possible to get $200,000 or $300,000 for a municipal consumptive hospital. I will do all in my power to keep up the agitation, and feel it will result this year in something. I thank the gentlemen of the society for inviting me here tonight. I have been very much pleased and instructed by the paper read by Dr. Knopf.

Mr. Norris: I am here on the invitation of Councilman O'Toole, and I am glad I came. I was very much interested in listening to the discussion of the subject by the various medical gentlemen. Owing to the agitation of members of the Massachusetts Medical Society, with the cooperation of certain gentlemen connected with the city government, I think the chances of getting a consumptives' home in Boston are very good. I was pleased to hear the remarks of Dr. Gerry, who is associated with me on the finance committee. As chairman of that committee, I wish to say that when a meeting of that committee is called I shall be pleased to give a public hearing, and invite the members of the Massachusetts Medical Society to appear, in order to encourage the idea of a consumptives' home in Boston. I believe we should have such a home, but I believe in having it built within the limits of the city, so as to give the poor people of the city an opportunity to see their friends without expense and loss of time. I was at first in favor of using the Marcella Street Home as a consumptive hospital, but later I felt that were I a resident and abuttor on that place I possibly would object to having such an institution there. I believe it would be best to place it on some of the vacant land owned by the city. Our financial resources this year are large. We can borrow in the neighborhood of $6,000,000. Now I think Dr. Gerry ought easily to secure $200,000 of that for a consumptives' home, and I want to say to Dr. Gerry that I shall assist him in any way possible to secure enough money for that particular object.

I was very much interested in the paper read by Dr. Knopf, and I would like to see a copy of it when it is printed. This is a discussion which interests the home, the poor people whom I am pleased to represent. I know of cases which cannot be taken at Rutland because that hospital is already crowded. We have not a hospital in the city, except the Carney, which will take incurable cases of consumption. It is a shame, in my opinion. I am glad to see the Massachusetts Medical Society take this matter up. I believe that with your assistance and co-operation we shall be able this year to secure a consumptives' hospital. I thank you, Mr. Chairman, for inviting me to say a few words on this important subject.

Dr. Richards, of Fall River: I have come here tonight with three of my colleagues on account of the fame of Dr. Knopf and a little personal correspondence I have had with him from time to time, and because of the great interest that we, in the third city of this Commonwealth in point of population, have in this subject. We have been trying to do a little educational work in our city. We induced the mayor in his last annual address to suggest a municipal hospital. We are interested in the progress of Boston and other cities in this line; for we hope in our own municipality to be able to have some means of taking care of the consumptives. At present our chronic cases are admitted to our city hospital, which is an almshouse although a perfectly equipped hospital.

There is one point which has been a drawback, which no speaker has referred to, and that is the unwillingness of the patient in the early stages to accept the diagnosis of the physician, and also the unwillingness of many physicians to make the diagnosis, although pretty certain in their own mind that they have a case of tuberculosis to deal with. Furthermore, among many people, no sooner is a diagnosis of that kind made by a conscientious physician in the early stage of the disease than the patient promptly calls another physician. It has been said to me by a physician of ability that he could not afford to make such a diagnosis, because if he did so he immediately lost his patient, so that he must call it bronchitis, etc., and do the best he could until such time as the disease had advanced sufficiently to be evident to any one. We have a campaign of education to make among the profession as well as among the laity. There can be no doubt of the laity being scared. I visited Rutland and Princeton last summer, and the gentleman who drove me around told me that people from New York and Boston, summer residents, were afraid to drive within two miles of the Rutland Sanitarium for fear of being infected. I was told by a physician in the town of Princeton that the idea suggested itself to him of having a sanitarium in Princeton, but he said if he did he would lose all his other practice. No tuberculosis patient will be admitted in any private boarding house or hotel. The summer residents of the town of Princeton are scared on account of the proximity of the town of Rutland, and afraid of great depreciation of property on account of the nearness of Rutland.

We are having the same trouble as others with reference to sending patients to Rutland. A few years ago we could not get the patients to go, and now they are returned because there is no

room. I was afraid possibly it was because we were away from Boston, and did not have any pull, and I wrote Dr. Bowditch that we were afraid that we were being discriminated against; but he replied that we were not; it was the same from every quarter. Massachusetts is doing a tremendous amount of good along this line, and such meetings as this do good because reported elsewhere. A little pamphlet of mine on the "Duty of the State towards the Tuberculous" was used this year before the legislature of Minnesota, and a physician in St. Paul wrote me that they had secured the appropriation for the land, and hoped next year to get the building.

DR. FAIRBANKS: I would like to relate one case to illustrate the utter impossibility of treating these poor people in their homes. A woman came some time ago with moderate trouble in the lungs, and we put her through the usual course of instruction. She had no appetite, and we put her on a bitter tonic. She came back in the course of a week, saying her appetite was better, and went away again, and that kept up three or four weeks, yet she did not gain, was steadily losing, but each time she said her appetite was better. On inquiring more thoroughly into her circumstances, with reluctance, she admitted that some days she got scarcely anything to eat. It was absurd to give that woman a tonic for her appetite when she had not anything to eat. She informed us that her husband had died some months previously of the same disease and she had nursed him. All the funds had gone. There were two children in the family. Two weeks ago an Italian woman came with incipient trouble in one lung; she had six children, the oldest eight and the youngest under a year. She could not speak English. It was almost impossible to talk to her, to advise precautions; practically a hopeless case. We could do nothing to save those children from the great danger to which they were exposed. It is the matter of food, which is the greatest difficulty. We may give these people a good appetite, but cannot furnish the food to satisfy it.

The educational value of these people who come from a sanitarium, particularly from Rutland, is great. I have had occasion to examine several who have come simply to have their lungs examined. It is remarkable to compare them with the ordinary case from the city homes. I have sometimes felt perfectly helpless in dealing with these latter people. I do not know what to do. All cases of evident trouble are reported to the city. All they do is to visit the case, keep track of it until death occurs, when they disinfect.

DR. V. T. BOWDITCH: The object of this meeting was to give a special impetus to the efforts made lately by some of our colleagues and a few of the laity towards establishing a municipal hospital for the consumptive poor, more especially for the advanced cases who are known to be too ill to receive permanent benefit from sanitarium treatment.

It is especially gratifying to hear of the cordial endorsement which the scheme has received, not only from the mayor, but from influential members of the board of aldermen and common council. Whatever decision is finally made as to location, it shows us at least that we have hope for the establishment in the near future of a suitable institution in or very near Boston. No one could possibly realize more than myself the crying need which exists here for proper shelter for the hopelessly ill consumptive. In my connection with the Sharon Sanitarium and the State Sanitarium at Rutland I am constantly brought face to face with these poor people for whom there exists no adequate provision, and the pathos of it cannot be too strongly painted.

Our hands are tied in trying to give these poor people advice. If we tell them to try to get into the country, we find that the doors of boarding houses are becoming more and more tightly closed against them, as the idea of the communicability of the disease becomes more and more an established idea in the minds of the community. We need say nothing at this time of the instances of heartless cruelty on this point which must come to the attention of every physician who has had any experience with such cases. Surely it is our duty to provide adequate shelter and treatment for these poor people without delay.

I can add nothing to what has been so well said here this evening. I only wish to emphasize most heartily what Dr. Otis has said in regard to the possible marked improvement of some patients sufficient to warrant their transfer to a sanitarium for the more hopeful cases. I claim that no physician can speak positively as to the future of any consumptive from one examination. Surprising cases of improvement with proper care we all see, and we should adopt no name for such a hospital which would seem to take away hope from those who enter it. While I believe its purpose should be primarily to receive the advanced cases of consumption, under no condition whatever should it be called a hospital for incurables.

I wish to add my thanks and express my sense of personal obligation to Dr. Knopf, who, at much sacrifice of time, has given us his valuable and helpful paper this evening.

DR. KNOPF, in closing the discussion, said: My eminent colleague, Dr. Knight, did not quite agree with me on the expression "absolute cure." In a little work I recently published,[2] I quoted the following statistics which give an idea of the relative duration of cures of consumptives. These statistics are of recent date: Among 99 patients discharged from the Falkenstein Sanatorium as cured, 72 were well at the time the inquiry was made, which was three to nine years after the patient had left the sanatorium. In 15 cases a relapse had occurred, but 12 of these patients had improved again; 12 of the 99 had died. Dr. Wolff's inquiries concerning 95 patients discharged as cured from Brehmer's institution in Gœrbersdorf, resulted in the following: Five were alive

[2] American Edition of the International Prize Essay, Tuberculosis as a Disease of the Masses and How to Combat It. M. Firestack, 200 West 96th Street, New York: Publisher.

and well after a period of from twenty-one to twenty-nine years; 52 were well after a period of from twelve to twenty-one years; and 38 were well after a period of from seven to twelve years. Dr. Hauffe, of the St. Blasien Sanatorium in Germany, wrote in 1891 to 324 former patients who had left the institution between 1879 and 1889. Forty-six did not reply, 5 were reported dead, 12 had grown worse, 201 thought themselves still relatively cured, and 72 were absolutely cured. Dr. von Ruck, of Asheville, N. C., reported to the author of this essay that he had written to 650 of his former patients who had left the sanatorium from one to three years before; 457 responded, directly or through friends. Of these, 67 felt absolutely cured; 70 felt relatively cured; 258 felt still improved; 62 got worse or had died. Dr. E. R. Baldwin, of Saranac Lake, N. Y., reported recently that at the Adirondack Cottage Sanatorium they were in constant correspondence with 115 patients who had been discharged within the last ten or twelve years, and while a few had relapsed slightly, the majority were well at their homes. Of course these reports do not, and cannot, correspond exactly. With the exception of the last-named institution, which only takes patients in the earlier stages, those sanatoria receive patients for treatment in all stages of the disease. But, as a whole, these statistics are certainly encouraging, and the question, "Can consumption be absolutely cured?" may well be answered in the affirmative. Of course, in regard to patients discharged from a sanatorium as cured or improved, there remains a most important work to be done to help the solution of the tuberculosis problem. We must keep the patient who is discharged from the sanatorium under control, and it was for this reason that I pleaded with you to have a special institution in the city, a reception hospital with a dispensary attached to it, where a patient who had been in the sanatorium could go in case of a relapse, and ask new advice if his improvement does not continue.

I was exceedingly pleased by the favorable comments made by several of the gentlemen on home climate. I believe that the majority of consumptive patients, and the majority of them are poor, should be treated in a climate as nearly as possible the same as that in which they will have to live and work after their restoration to health. If you send a patient away to a very high altitude where different climatic conditions prevail, his chances of remaining well after his return to lowlands may be considerably diminished. But let it be understood that, no matter to what climate the patient may be sent, he must be treated and not be kept. And here I cannot emphasize enough what has already been said so well by my distinguished friend, Dr. Otis, that a so-called "consumptive home" without a residing medical officer to supervise and treat the inmates, can not be considered an up-to-date institution, intended to combat tuberculosis. To see that fifty or a hundred consumptive patients never violate any of the rules concerning the care of the infectious sputum, requires more than the gentle hand of a minister or matron, the persons usually selected as managers of consumptive homes.

One of your distinguished aldermen spoke of the necessity of having the institutions near the city, saying that the relatives of the patient would be often very anxious to see him. This is true, but there is another point which I believe to be just as important: We should not send the majority of patients far away, because we must avoid adding to their sufferings another disease, namely, nostalgia, or, in other words, homesickness.

We should not make people afraid of consumptives. While we should always teach the danger and the communicability of the disease, we should not call it contagious in the sense of being conveyed from the consumptive to the healthy person by simple touch. Some people are afraid to shake hands with a consumptive. A clean consumptive is no more a danger to his fellowmen than any healthy person, and I am far more willing to go and sleep in sanatoria and in the homes of careful consumptives than in many other places. I have lived for months in sanatoria with consumptive patients, taken my meals with them, and slept in rooms previously occupied by some of them, and I felt more sure that I would not catch consumption than I feel in some of our Pullman sleepers.

Time is passing, and much as I would like to say a few words in response to everyone who has honored me by discussing my paper, I must stop. I wish to thank them and you all for so kindly listening to me. I hope we will ere long have such good and generous aldermen in New York and such a wise city and State government as you have. Then we, too, will have all the institutions we need. Let me congratulate you on the really remarkable help you receive from your city fathers, and I wish to repeat what I said in my paper that I believe Boston and the State of Massachusetts will be the first places in the Union where the tuberculosis problem will be solved.

Recent Literature.

Sexual Debility in Man. By F. R. Sturgis, M.D., formerly Clinical Professor of Venereal Diseases of the University of the City of New York; sometime Visiting Surgeon to the Venereal Division of the Charity Hospital, Blackwell's Island, etc. New York: E. B. Treat & Co. 1900.

If originality is lacking anywhere in this work it is certainly not in its dedication, in which the writer expresses a somewhat singular sentiment in the following words: "To the sexual cripples of the United States, whose infirmities have in part contributed to his support, this book is gratefully dedicated by their obliged friend, the author." It is to be hoped that the cripples will appreciate this handsome acknowledgment; the profession may perhaps be excused for failing to do so.

After this unusual prelude there is a sense of disappointment upon finding that the work must be ranked as but one of a series, already too numerous, we believe, of similar publications, since it has not the distinction of especial excellence. It is well arranged, and the sequence of its subjects is good. The nine illustrations which appear at the end of the volume are rather inferior in quality. In the chapters devoted to the anatomy and physiology of the male sexual organs there are some interesting examples of abnormal and precocious sexual development recorded, but as a whole this part of the work adds nothing new of scientific or practical value to our present knowledge of the subjects. The chapter in which masturbation is discussed is notable chiefly for the expression of the writer's view of the subject, which combats the usually accepted belief as to the serious evils resulting from indulgence in the habit, and condemns that idea as exaggerated and mistaken, unless the habit is practised to excess such as is infrequently met with. While conceding to this work some good qualities, we do not think that it is entitled to special consideration, or that it has the merit which we might expect in a contribution from this author.

A Dictionary of Medical Science. Containing a full explanation of the various subjects and terms of anatomy, physiology, medical chemistry, pharmacy, pharmacology, therapeutics, medicine, hygiene, dietetics, pathology, bacteriology, surgery, ophthalmology, otology, laryngology, dermatology, gynecology, obstetrics, pediatrics, medical jurisprudence, dentistry, veterinary science, etc. By ROBLEY DUNGLISON, M.D., LL.D., late Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College. Twenty-second edition, with appendix, thoroughly revised and greatly enlarged, and with the Pronounciation, Accentuation and Derivation of the Terms. By ROBLEY J. DUNGLISON, A.M., M.D. Philadelphia and New York: Lea Brothers & Co., 1900.

In the preface, the present editor tells us that "more than seventy years have passed since Dr. Robley Dunglison gave to the English-speaking world its first standard of medical lexicography, during which long period no less than twenty-one editions have been called for, and it is a fitting and proper tribute to his memory that the author's portrait should preface the twenty-second revision." As illustrating the growth of the many sciences embraced today in the word medicine, and the difficult task imposed upon the medical lexicographer, the preface also tells us that the twentieth edition contained 6,000 new words, the twenty-first edition, issued seven years ago, increased by 44,000; a few years later 2,000 more were added, and now in the present edition 15,000 words are added.

Dunglison's Medical Dictionary has been too long and too favorably known by the medical profession to need further endorsement at this day, beyond the statement that this new edition puts it well abreast of the times.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, MAY 23, 1901.

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NEW LIGHT ON THE CAUSE OF PANCREATITIS.

AT the recent meeting of the Association of American Physicians, no more valuable or original work was presented than that embodying the researches of Dr. E. L. Opie concerning the etiology of acute hemorrhagic pancreatitis. The suggestion for the experimental investigation carried out by Opie was given by the following case:

A patient ill with acute abdominal symptoms was operated upon, and acute hemorrhagic pancreatitis discovered. No gall stones were felt during the operation, although they were searched for carefully; but at the autopsy, which occurred soon after, a biliary calculus was found in the diverticulum of Vater, occluding the entrance of the conjoined pancreatic and hepatic ducts into the duodenum. The stone was only a few millimetres in diameter, and had naturally enough escaped detection at the operation. It was of sufficient size, however, completely to prevent the entrance of bile into the duodenum, so as to shunt off the bile stream into the pancreatic duct, and an extensive infiltration of the pancreas with bile was noted at the autopsy. The possibility occurred to Opie that the pancreatitis might be due to the soaking of the pancreas with the misdirected bile stream, and he accordingly instituted experiments upon dogs, to determine whether hemorrhagic pancreatitis could be produced by the injection of the animal's own bile into the pancreatic duct.

The result of these experiments was the demonstration that the lesions of acute hemorrhagic pancreatitis, both gross and microscopic, can be produced experimentally by the injection of bile. These experiments also show that even a very temporary biliary obstruction by a gall stone in the diverticulum of Vater might suffice to produce pancreatitis. On reviewing the literature relating to autopsies in cases of acute pancrea-

titis, Opie found that in almost all fully described cases the presence of gall stones in some part of the biliary tract was noticed. If gall stones are present at autopsy in all cases of pancreatitis and if the presence of bile in the pancreas is sufficient to excite experimental pancreatitis the presumption is strong that misdirected bile is the *fons et origo mali*. It is not essential that the calculus should be in the diverticulum of Vater at the time of autopsy. It may have lodged there but a few minutes, temporarily diverted the bile into the pancreas, and then passed on. We have, then, a plausible explanation of the cause of acute pancreatitis, and while it is not yet safe to say that the only cause of acute pancreatitis is the deluging of the pancreas with bile, yet it certainly seems justifiable to consider that many cases are brought about in this way.

In the course of the same discussion, Flexner demonstrated specimens of acute experimental pancreatitis produced by the injection of gastric juice into the pancreas. He admitted, however, that it seemed very unlikely that gastric juice would find its way into the pancreas.

Two comments upon Dr. Opie's discovery will occur to everyone: First, that cancer of the duodenal papilla or pancreatic stones lodging in the diverticulum of Vater might cause a similar turning of the bile stream into the pancreas. Secondly, that catarrhal jaundice, were its pathology as generally stated, would be apt to be followed by acute pancreatitis. The time-honored hypothesis of the mucous plug at or near the duodenal opening of the pancreatic and hepatic ducts, in cases of catarrhal jaundice, has been doubted by many pathologists. We are not here concerned with the truth of this hypothesis, but desire only to point out that, if it were true, the gastro-duodenal catarrh, which we ordinarily picture as extending to and occluding the lower biliary passages, might occlude, *first*, the duodenal opening of the conjoined ducts and so turn the bile stream into the pancreas. If, then, the old explanation of catarrhal jaundice were held to, it would seem strange that hemorrhagic pancreatitis does not oftener follow. To us, however, it seems more likely that Opie's discovery will tend to throw still greater doubt upon the "mucous plug" theory of catarrhal jaundice.

No doubt these points will be considered by Opie in the printed text of his paper, no abstract or summary of which has yet found its way into any of the reports of the meeting at which it was read — a curious, perhaps an inspired, omission.

In conclusion, we desire very heartily to congratulate Dr. Opie upon the completion of one of the most interesting and valuable pieces of scientific work yet done in America.

A NEW MEDICAL LABORATORY FOR THE UNIVERSITY OF PENNSYLVANIA.

WITH the development of medical education, which has marked the last few years, has come the necessity of providing space for the prosecution of the work which is both an effect and a cause of that development. The medical school of the future clearly cannot be contained in one small building, provided with several lecture rooms and an occasional laboratory. Above all things, room is required, not only for original investigators, but also for the use of students. It is perfectly safe to say that nearly every medical school in America is more or less hampered in its teaching facilities by this lack of adequate space for the practical work of its students. It is also a safe prophesy to make that the next few years will see an extraordinary growth of buildings devoted to medical science in the broad sense.

The University of Pennsylvania seems likely to be a pioneer in this effort to enlarge the possibilities of a truly liberal medical education. We have before us plans of a proposed laboratory building, to be erected at a cost of upward of $500,000, for the medical department of that university, with other detached buildings in contemplation. The announcement of the general plan of the new building states that it will be two stories in height above a high basement, and will measure 340 feet front by nearly 200 feet in depth. The long front faces north, securing a maximum amount of the best light for laboratory purposes. Along the front are arranged small rooms for research, rooms for professors and their assistants, a library, etc.; these open into a private corridor, so that men employed in these rooms may pursue their work without interruption from students passing through the main halls. The first floor will be devoted to physiology and pharmaco-dynamics, and the second floor exclusively to pathology. Special laboratories will be provided on this floor for comparative pathology, neuro-pathology and surgical pathology, with abundant rooms for individual research. In addition to these laboratories there are to be four lecture rooms, two with a capacity of 185 students and two with a seating capacity of 400. In the construction of the building care has been taken to provide sufficient light, a matter which at times is overlooked; a large central court admits direct light to the inner portions of the various laboratories. Ample provision has likewise been made for photography, which has become an essential adjunct of the modern laboratory.

This step in progress on the part of the University of Pennsylvania should prove a stimulus to many other institutions. While recognizing the fact that buildings and laboratories do not make a

medical school, nor necessarily develop investigators and scholars, we are, nevertheless, convinced that such a material recognition of the needs of medical instruction will do much to bring nearer the day when medicine will be completely established as a branch of scientific education.

THE ILLEGAL SALE OF NARCOTICS.

A SOMEWHAT alarming report comes from Vermont as to the amount of narcotic drugs sold and consumed in that State. The following is said to be in part the substance of an investigation recently instituted by Dr. A. P. Grinnell, of Burlington: "In the regular drug stores and in 160 of the 172 general stores in the State of Vermont there is sold every month 3,300,000 doses of opium beside what is dispensed in patent medicines, and beside what the doctors dispense, which gives one and one-half doses of opium to every man and woman in the State above the age of twenty-one years every day of the year. By dose I mean one grain opium, one-eighth grain morphine, one-half ounce paregoric, and twenty drops laudanum. The amount consumed each month means a half-dose for every person in the State every day of the year."

Whether or not these figures are exact, we have no means of knowing, but in any case the result of Doctor Grinnell's investigation gives us considerable food for thought. The one palpable fact of importance which we must all recognize is that drugs are sold illegally in large amounts everywhere and that no adequate measures are taken to stop the traffic. It is a common enough experience to be told by morphine habitués that they have no difficulty whatever in obtaining the drug in as large an amount as they desire. There apparently exists in certain instances a kind of freemasonry between the buyers and sellers which naturally does much to extend the evil. On one occasion a young woman who was on the verge of a complete breakdown from morphine-taking and other vicious habits, told us, with considerable resentment, that of course she would not tell where she got her drugs; that they had treated her squarely in selling to her, and that she had not the smallest intention of "giving them away." Doctor Grinnell has certainly inaugurated a good work and one which should ultimately be of great value to the community at large, if he can succeed in exposing the full extent of the vice in his State and can further accomplish the more difficult task of bringing to justice the men who profit by the illegal business.

In connection with this general subject, a recent decision of Judge Cornish, of Lewiston, Me., regarding certain proprietary medicines, is of importance and interest. The litigation arose from an attempt to bring into the State a certain so-called medicine containing a large amount of alcohol. The Judge, in rendering his decision, said: "The testimony shows that wine is the predominating element in this compound; that it contains 23% of alcohol; that the wine retains its character as an intoxicating liquor, capable of use as an intoxicating beverage, notwithstanding other ingredients have been mixed therewith. The compound, therefore, falls under the ban of the law."

This, again, is undoubtedly a step in the right direction. It is extremely desirable that people in general be made aware of the ingredients of the numerous nostrums, which are paraded as specifics before the public. There can be little question that various addictions are fostered, if not actually started, by so-called specifics, the ingredients of which are unknown. The whole problem is a large one, and one, no doubt, exceedingly difficult of satisfactory solution, but a little energy on the part of the constituted authorities, and a stricter censorship of drug concerns on the part of physicians, would certainly do much to mitigate the evil.

MEDICAL NOTES.

OFFICERS OF AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.— The following officers were elected at the annual meeting of the American Gastro-Enterological Association held in Washington, D. C., May 1, 1901: President, John C. Hemmeter, M.D., Baltimore; First Vice President, W. D. Booker, M.D., Baltimore; Second Vice President, S. J. Meltzer, M.D., New York; Secretary and Treasurer, Charles D. Aaron, M.D., Detroit. The next annual meeting of the Association will be held in Washington, D. C., May 2, 1902.

DEATH OF JOSEPH FODOR, M.D.— Joseph Fodor, M.D., professor of hygiene at the University of Budapest, has died. He was born in 1843, was a pupil of Pettenkofer at Munich, and later studied under Baron Liebig.

A DECORATION FOR DR. CHRISTIAN FENGER.— Dr. Christian Fenger, of Chicago, has received the Cross of Dannebrog from King Christian IX, of Denmark, in recognition of his contribution to surgical knowledge.

SMALLPOX IN DETROIT, MICH.— A number of cases of smallpox have recently been discovered in a Polish convent in Detroit. The institution has been quarantined by the Board of Health.

SPECIAL TRAIN FOR THE AMERICAN MEDICAL ASSOCIATION.— Arrangements have been perfected with the Chicago & Northwestern Railway, to run a special train from Chicago to St. Paul for the

accommodation of such members of the American Medical Association and their friends as desire to attend the fifty-second annual meeting.

A Negro Centenarian.—Rev. William H. Connor died recently at his home in New London, Conn., aged nearly one hundred and one years. He was born in slavery.

Stanford E. Chaille, LL.D.—Tulane University, New Orleans, has recently conferred the degree of LL.D. on Dr. Stanford E. Chaille, dean of the medical department.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 22, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 60, scarlatina 35, measles 150, typhoid fever 8, smallpox 13.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending May 18th was 193, as against 245 the corresponding week last year, showing a decrease of 52 deaths, and making the death rate for the week 17.9. Consumption 27, pneumonia 26, whooping cough 0, heart disease 16, bronchitis 5, marasmus 3. There were 5 deaths from violent causes. The number of children who died under one year was 31; under five years, 54; persons more than sixty years of age, 44; deaths in public institutions, 67.

Smallpox in and about Boston.— Several cases of mild smallpox have come to light in Roxbury. It is said that 3,000 persons have been vaccinated in the district in which the disease has appeared, and no serious epidemic is apprehended. A single case of smallpox is also under treatment at the United States Marine Hospital in Chelsea, having been transferred from a vessel coming from New York. Isolation is complete and there is no likelihood of the development of other cases.

Examination for License to Practice Medicine in New Hampshire.— The next examination for licenses to practice medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, June 11 and 12, 1901, beginning at 8 o'clock A.M. All unlicensed physicians who were not in practice in this State on and before March 16, 1897, must pass the examinations in order to receive a license to practice legally their profession.

A Centenarian. — Mrs. Eunice Slade died in Walpole, N. H., May 12th, at the age of one hundred and one years and six months. She was married before she was twenty, and is survived by 2 children, 15 grandchildren and 13 great-grandchildren.

Bequest to the Carney Hospital.—By the will of the late Julius Adams the Carney Hospital is to receive $56,500.

NEW YORK.

Opening of Hospital for Crippled and Deformed Children. — The formal opening of the New York State Hospital for the Care of Crippled and Deformed Children, at Tarrytown, took place under the most gratifying auspices on May 17th. The establishment of the hospital is due, mainly, to the efforts of Dr. Newton M. Shaffer, now its surgeon-in-chief, who, in a paper on "The Care of Crippled and Deformed Children," read at the annual meeting of the National Conference of Charities and Correction held in May, 1898, spoke of the large number of these unfortunates who were being only half cared for by the existing medical institutions of the State, and aroused interest in the subject. Later, a bill incorporating a State hospital for this class of patients was passed by the legislature and an appropriation for it of $15,000 for the first year was made. In June of last year, an old country house on the banks of the Hudson, at Tarrytown, with spacious and attractive grounds, was leased, and has since been renovated and equipped for hospital purposes at an expense of $5,000.

American Congress of Tuberculosis. — The second annual Congress of Tuberculosis was held at the Hotel Majestic on May 15th and 16th, under the auspices of the New York Medico-Legal Society. The election resulted in the selection of Dr. A. N. Bell, of New York, former President, as Honorary President; Dr. Henry Holton, of Vermont, as President; and Clark Bell, Esq., of New York, President of the Medico-Legal Society, as Secretary and Treasurer. A long list of vice presidents was also elected. The aims of the congress, as announced, were: First, to determine the best methods for checking the spread of consumption; and, second, to recommend legislation for carrying the same into practical effect. It cannot be said, however, that the cause of scientific medicine was advanced to any appreciable extent by the meeting. No discrimination, whatever, seems to have been shown in the selection of papers, so that the time of the convention was largely taken up by cranks and by those with axes to grind in the shape of self-lauded special methods of treatment.

Appointment of Dr. Frederick Peterson.— Governor Odell has made an admirable selection in the appointment of Dr. Frederick Peterson, of New York, on the State Commission in Lunacy, in the place of Dr. Wise, which was announced on May 13th. In addition to having made spe-

cial studies in Europe, comprising six years in all, Dr. Peterson was for three years first assistant physician in the Hudson River State Hospital for the Insane. He has had a large experience as a private consultant, and is at present president of the Craig Colony for Epileptics, consulting physician to the Manhattan State Hospital for the Insane and clinical lecturer on insanity in the medical department of Columbia University.

SMALLPOX. — In consequence of the considerable number of cases of smallpox occurring among immigrants arriving from Naples, Health Officer Doty recently held a conference with the various steamship companies trading to that city, in which the companies agreed to at once notify their agents abroad to use their best efforts to secure the rigid enforcement of the regulations regarding smallpox and vaccination.

Miscellany.

THE ONE HUNDRED AND FIFTIETH ANNIVERSARY OF THE PENNSYLVANIA HOSPITAL.

THE exercises commemorating the one hundred and fiftieth anniversary of the founding of the "Mother of American Hospitals" were held in the new entrance hall of the hospital May 11th. Among the guests were many American physicians and not a few representatives of foreign societies and medical associations.

The address of welcome was delivered by the president of the Board of Managers, Benjamin H. Shoemaker. He spoke briefly of the first action taken to found the hospital, and introduced as the speaker of the occasion Mr. John B. Garrett, a member of the Board of Managers, who delivered the commemorative address. This was historical in character, the progress of the hospital being traced from its inception to the present time. At the time of its foundation the province of Pennsylvania had a population of about 200,000, and the city of Philadelphia 25,000. It was remarkable that less than seventy years after Penn's treaty with the Indians and twenty-five years before the Declaration of Independence was signed, an institution for the care of the sick should be established, and, what was more remarkable for those times, that it should include provision for the insane. Benjamin Franklin was largely responsible for the inception of the institution, but his name is not prominently identified with its early history.

May 11, 1751, the act incorporating the "Contributors to the Pennsylvania Hospital" was signed by Governor Hamilton, and from that day the institution dates its history. In August of the same year subscriptions to the amount of £2,751 were reported, this making available £2,000 voted by the Assembly. In 1754 the lot of ground on Pine Street, from Eighth to Ninth, on which the hospital now stands, was purchased. In 1755 the cornerstone of the new hospital was laid.

The founding of the insane department marked a distinct epoch in the history of the hospital. A partial separation of the insane and of the sexes was begun in 1825, but the accommodations were inadequate. In 1835 a tract of 101 acres was purchased in West Philadelphia, buildings erected, and in 1841 the insane patients were removed thereto. Drs. Rush and Physick took charge of cases, and thus took a distinct step in the specializing of medicine. This period also marks the beginning of a distinct advance in the treatment of the insane, and in the results attained. The history of the insane department has been one of constant advance.

The Pennsylvania Hospital has received no State or municipal aid for over a century.

After the commemorative exercises were over the visitors made an inspection of the hospital buildings. A like inspection of the insane department was made May 18th.— *American Medicine.*

THE SUBSIDY PROBLEM IN NEW YORK CITY.

ON May 13th, when the general session of the National Conference of Charities and Correction, convened at Washington, was devoted to a discussion of the division of work between public and private charity, Controller Color, of New York, made an interesting and instructive address on the subsidy problem in that city. In the course of it he said: Largely on account of the constant afflux of an alien population, the charity problem of no other city of the world can be compared with that of New York. Prior to the passage of the so-called Stranahan Act in 1899, the city had been appropriating various sums of money to private charitable institutions, under special acts of the legislature, passed from time to time, at the solicitation of individuals interested in these institutions. No uniform policy had been pursued in the passage of these acts. The whole subsidy system was characterized by an entire lack of system. The effect of the Stranahan Act of 1899, following the Constitutional amendment of 1894, was to grant to the local authorities full and ample power and discretion in the matter of making appropriations for charitable purposes, and to throw upon the city government the entire responsibility for these expenditures. In rearranging and reapportioning appropriations for private charities in the budget of 1900, the Board of Estimate and Apportionment adopted the following principles: First, all such appropriations were included in the annual budget, which is raised directly by taxation, so that each item thereof could be under the easy scrutiny of the taxpayers.

Secondly, with scarcely an exception all payments to private charitable institutions were measured by a system of per capita charges or by

some other system of pro rata payments governed by the specific service performed.

In 1899 the amount actually expended by the city in aid of private charities was $2,886,229.30. Under the new system first inaugurated in 1900, the Board of Estimate and Apportionment appropriated $3,079,259.60,—it being uncertain at the time of making these appropriations just what the results of the new system would be. The actual amount expended in 1900, however, was $2,676,534.28, or $200,695.02 less than the amount expended in the preceding year, and $402,725.32 less than the amount appropriated. Speaking broadly, therefore, I may conclude by saying that the subsidy system of New York City has been greatly improved by entrusting its treatment exclusively to the local authorities, and that while it is still a proper subject for much criticism and improvement, there has been enough accomplished already to mark out a path upon which the most substantial and beneficial progress may be made in the future.

THE FACTS ABOUT A TYPHOID FEVER EPIDEMIC.

IN the April *Monthly Bulletin* of the Connecticut State Board of Health, Dr. C. A. Lindsley, secretary of the Board, makes the following authoritative statement regarding the recent outbreak of typhoid fever in New Haven:

On the 3d of April, 1901, 6 cases of typhoid were reported to the health officer, all in one section of the city. This was indicative of a fresh localized infection which threatened further results. An investigation was begun at once with such success that on the following day it was discovered that one reservoir, supplying the section of the city in which the fever patients resided, had become infected from a family living on its watershed. The water was immediately shut off from its consumers, and has not since been used. New cases continued to be reported daily in increasing numbers until the 9th of April, on which day 95 were reported. From that date the numbers gradually diminished until near the end of the month, when they ceased. This termination of the outbreak was expected, as the period of incubation after the 4th of April had expired. During April, between the 3d and the 30th, 455 cases were reported at the office of the Board of Health. Some of these were reported as "suspicious," and others were prematurely stated to be typhoid but which afterwards proved not to be. A careful inquiry is being made to determine as close as possible the number of true cases.

The total deaths at this date, May 12th, have been 54, nearly 12% of the cases reported. The reservoir has been emptied completely and the pipes flushed with water from other sources. The reservoir has been refilled and will stand, by order of the Board of Health, unused a month and then drawn off, and may again be refilled for renewed use.

The New Haven Water Company, under its present management, has been and is making many efforts to protect the water from contamination. Many hundred acres of watershed have been purchased and cleared of all sources of pollution. The large extent of watershed contributing to the supply is constantly patrolled. The town health officers are paid for reporting to the company every case of typhoid fever occurring near any tributary to the reservoir.

Notwithstanding all the above precautions, this disastrous accident has occurred, and illustrates, more emphatically than any argument, the danger of disposing of typhoid excretions without previous disinfection.

Obituary.

CHARLES RICE, PH. D.

CHARLES RICE, PH. D., for thirty-five years a chemist in the Department of Charities of New York City, and one of the leading pharmaceutical authorities in the country, died at Bellevue Hospital on May 14th, of cancer of the throat. He was born at Munich, Bavaria, in 1841, of Austrian parents, and was educated at Munich, Vienna and Passau. He came to America in 1862, and served as surgeon's steward in the navy until 1865, when he entered the service of the Department of Charities and Correction, New York. In 1867 he was made a trustee of the New York College of Pharmacy, and afterwards served as chairman of the Pharmacopœia Committee of the American Pharmaceutical Association, and also chairman of the National Commission on Revision of the United States Pharmacopœia. He received the honorary degree of Doctor of Philosophy, from the University of the City of New York, and was an Honorary Fellow of the New York Academy of Medicine, and an Honorary Member of the Philadelphia College of Pharmacy. In addition to his professional attainments, Dr. Rice was eminent as an Oriental scholar, doing valuable work for the Indian Government, and was recognized as an authority in philology and etymology. A special meeting of the medical board and staff of Bellevue Hospital was held to take action on his death.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 11, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Measles.	Diphtheria and croup.
New York	3,437,202	1,279	415	27.65	13.75	3.83	.62	4.06
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	475	143	22.73	14.95	1.26	.84	3.57
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	182	49	18.13	10.98	—	—	.54
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	—	—	—	—	—	—	—
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	65	15	24.64	16.94	1.54	1.54	1.54
Boston	560,892	238	72	18.42	19.32	.42	1.68	1.68
Worcester	118,421	39	8	15.38	12.82	2.56	—	—
Fall River	104,863	27	11	22.20	11.10	—	—	—
Lowell	94,989	36	11	5.71	14.28	—	—	—
Cambridge	91,886	32	11	40.62	9.37	—	6.25	3.12
Lynn	68,513	20	5	10.00	—	—	—	5.00
Lawrence	62,559	25	9	8.00	16.00	—	—	—
New Bedford	62,442	16	6	25.00	6.25	6.25	—	—
Springfield	62,059	15	2	13.33	—	—	—	—
Somerville	61,643	19	2	21.05	36.84	—	5.26	—
Holyoke	45,712	8	1	25.00	—	—	—	—
Brockton	40,063	7	1	14.30	42.90	—	—	—
Haverhill	37,175	11	2	9.10	36.36	—	—	—
Salem	35,956	12	2	16.67	—	—	—	—
Chelsea	34,072	10	1	10.00	—	—	—	10.00
Malden	33,664	6	3	33.33	—	—	—	16.67
Newton	33,587	7	1	—	14.30	—	—	—
Fitchburg	31,531	11	3	18.18	—	—	—	—
Taunton	31,036	9	2	22.22	—	—	—	—
Gloucester	26,121	5	1	20.00	—	—	—	—
Everett	24,336	5	1	20.00	40.00	—	—	—
North Adams	24,200	7	1	28.60	14.30	—	—	—
Quincy	23,899	7	—	28.60	14.30	—	—	—
Waltham	23,481	9	2	22.22	11.11	—	—	—
Pittsfield	21,766	2	—	—	—	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	4	1	—	—	—	—	—
Medford	18,244	5	1	40.00	20.00	—	20.00	—
Newburyport	14,478	4	—	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,609; under five years of age 784; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 619, acute

lung diseases 370, consumption 318, diphtheria and croup 80, diarrheal diseases 58, scarlet fever 59, influenza 6, erysipelas 9, typhoid fever 30, whooping cough 10, measles 21, cerebro-spinal meningitis 7, smallpox 1 9.

From whooping cough, New York 5, Philadelphia 3, Providence 1, Cambridge 1. From cerebro-spinal meningitis, New York 3, Worcester 2, Salem 1, Gloucester 1. From scarlet fever, New York 49, Philadelphia 6, Providence 1, Boston, Worcester and New Bedford 1 each. From typhoid fever, New York 10, Philadelphia 13, Baltimore 4, Providence 1, Boston 1, Lawrence 1. From erysipelas, New York 7, Baltimore 1, Boston 1. From smallpox, New York 19.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending April 27th, the death rate was 17.9. Deaths reported, 4,047: acute diseases of the respiratory organs (London), 286, whooping cough 122, diphtheria 48, measles 101, fever 26, scarlet fever 30.

The death rate ranged from 10.3, in West Ham to 24.8, in Bolton : Birkenhead 11.8, Birmingham 18.2, Blackburn 18.0, Bradford 19.7, Brighton 11.7, Bristol 18.7, Burnley 18.6, Cardiff 12.3, Croydon 13.9, Derby 11.4, Gateshead 22.3, Halifax 24.4, Huddersfield 16.3, Hull 13.5, Leeds 16.6, Leicester 14.9, Liverpool 22.8, London 17.4, Manchester, 21.2, Newcastle-on-Tyne 19.5, Norwich 13.4, Nottingham 19.9, Oldham 17.7, Plymouth 26.1, Portsmouth 21.5, Preston 20.8, Salford 20.8, Sheffield 18.6, Sunderland 17.8, Swansea 18.0, Wolverhampton 15.0.

METEOROLOGICAL RECORD.

For the week ending May 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S....5	29.76	50	57	42	54	78	66	N	N E	20	8	C.	O.	.0
M...6	29.88	50	59	40	75	61	68	N	S W	9	10	F.	C.	.0
T....7	29.79	58	70	47	48	52	50	W	S E	8	10	C.	C.	.0
W..8	29.96	60	68	52	73	35	54	E	S W	6	9	C.	F.	.0
T....9	30.09	50	55	45	46	47	46	E	E	8	10	F.	O.	.0
F ..10	30.04	50	53	46	96	100	98	N E	N E	10	14	R.	R.	.31
S...11	29.74	58	67	50	97	83	90	S	S	12	11	O.	O.	.58
☞	29.89		61	46			67							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 9, 1901.

AUSTIN, H. W., surgeon. To proceed to Washington, D. C., for special temporary duty. May 9, 1901.

WOODWARD, R. M., surgeon. Granted leave of absence for ten days from May 7th. May 6, 1901.

STIMPSON, W. G., passed assistant surgeon. To proceed to Coalgate, I. T., for special temporary duty. May 9, 1901.

CLARK, TALIAFERRO, assistant surgeon. Granted thirty days' extension of leave of absence, on account of sickness, from April 21st. May 6, 1901.

ROBINSON, D. E., assistant surgeon. To proceed to Port Townsend (Washington) quarantine station, and report to the medical officer in command for special temporary duty. May 6, 1901.

MOORE, DUNLOP, assistant surgeon. That portion of Bureau order of April 18, 1901, directing Assistant Surgeon Moore to proceed to San Francisco, Cal., revoked. May 6, 1901.

RYDER, L. W., hospital steward. Granted leave of absence for fifteen days from May 6th. May 7, 1901.

FOR THE SEVEN DAYS ENDED MAY 16, 1901.

GODFREY, JOHN, surgeon. Upon being relieved by Surgeon J. J. Kinyoun, to proceed to Wilmington, N. C., and assume command of the service, relieving Surgeon T. B. Perry. May 11, 1901.

WASDIN, EUGENE, surgeon. To proceed to Gardner, Ill., for special temporary duty. May 14, 1901. Bureau order of May 14th, directing Surgeon Wasdin to proceed to Gardner, Ill., revoked. May 14, 1901.

PERRY, T. B., surgeon. Upon being relieved from duty at Wilmington, N. C., to proceed to Baltimore, Md., and report to medical officer in command for duty and assignment to quarters. May 11, 1901.

WOODWARD, R. M., surgeon. Granted ten days' extension of leave of absence. May 15, 1901.

YOUNG, G. B., passed assistant surgeon. Granted leave of absence for two months and twenty-two days from May 30th. May 9, 1901.

STIMPSON, W. G., passed assistant surgeon. To proceed to Guthrie, Oklahoma, for special temporary duty. May 14, 1901.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for one day. May 15, 1901.

GREENE, J. B., passed assistant surgeon. Granted leave of absence for ten days from May 15. May 14, 1901.

FOX, CARROLL, assistant surgeon. To proceed to Sitka and Juneau, Alaska, for special temporary duty. May 10, 1901.

THORNBURY, F. J., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to Dutch Harbor, Alaska, and assume command of the service. May 16, 1901.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for two days from May 21st. May 16, 1901.

ULRICH, C. F., acting assistant surgeon. Granted leave of absence for 12 days from May 14. May 10, 1901.

MASON, M. R., hospital steward. Relieved from duty at San Francisco, Cal., and directed to proceed to Dutch Harbor, Alaska, and report to medical officer in command for duty. May 16, 1901.

RECENT DEATH.

DR. JAMES HAYES, one of the oldest physicians in Central New Jersey, died at his residence in Plainfield on May 13th from cancer. He was graduated from Princeton in 1841 and from the College of Physicians and Surgeons, New York, in 1844.

BOOKS AND PAMPHLETS RECEIVED.

Affections of the Eye and Its Appendages in Bright's Disease. By William Cheatham, M.D. Reprint. 1901.

The Acute Contagious Diseases of Childhood. By Marcus P. Hatfield, A.M., M.D. Chicago : G. P. Engelhard & Company. 1901.

Municipal Sanitation in the United States. By Charles V. Chapin, M.D., Superintendent of Health of the city of Providence. Providence Press : Snow & Farnham. 1901.

A Syllabus of New Remedies and Therapeutic Measures. With Chemistry, Physical Appearance and Therapeutic Application. By J. W. Wainwright, M.D. Chicago : G. P. Engelhard & Company. 1901.

A Handbook of Materia Medica, Pharmacy and Therapeutics. Including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy, and Minute Directions for Prescription Writing. By Samuel O. L. Potter, A.M., M.D., M.R.C.P. (Lond.) Eighth edition, revised and enlarged. Philadelphia : P. Blakiston's Son & Co. 1901.

Six Cases of Secondary Operation for Wrist-Drop from Injury to the Musculo-Spiral Nerve by Fracture of the Humerus ; Very Little Improvement in Four, Complete Restoration of Function in Two Cases. By W. W. Keen, M.D., LL.D., F.R.C.S., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, U. S. A. Reprint. Illustrated. 1900.

A Case of Ligature of the Abdominal Aorta Just Below the Diaphragm, the Patient Surviving for Forty-Eight Days : With a Proposed Instrument for the Treatment of Aneurisms of the Abdominal Aorta by Temporary Compression. By W. W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Reprint. Illustrated. 1900.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, other than Drug-giving, useful in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. I, Electrotheraphy. By George W. Jacoby, M.D. In two books. Book I, Electro Physics. Apparatus Required for the Therapeutic and Diagnostic Use of Electricity. Illustrated. Philadelphia : P. Blakiston's Son & Co. 1901.

Original Article.

THE DIAGNOSIS AND SURGICAL TREATMENT OF RENAL TUBERCULOSIS [1].

BY F. TILDEN BROWN, M.D., NEW YORK.

Your complimentary invitation to read a brief paper of this sort gave a double pleasure, in that it meant being present with you at so instructive a symposium and, again, because we inferred the possession of some items of interest which might be offered in partial exchange for the privilege. On reviewing our material, however, this was seen to be too scanty and intangible to shape up as a satisfactory contribution to the purely surgical treatment of renal tuberculosis, and we are therefore going to ask you to accept a recital of abbreviated histories given with the brief comments which seem best suited to bring out their salient features of symptom and treatment, whether this latter may redound to the credit of surgery, medicine, or neither.

For obvious reasons, in this malady, no one can speak authoritatively, either as to the final results of supposed radical surgical treatment, or, on the other hand, as to the certain progress towards a fatal termination of all cases which are not treated in some way.

Only a few cases fall to the lot of each observer, and even if we have been successful in overcoming the difficulties of determining the exact localization of the disease, the subsequent course of the patients and their residences are not easily kept track of. Some of the reported cures by nephrectomy are rather operative recoveries, and afford but temporary respite from the dangers of new foci of tuberculosis, because other lesser lesions had not been recognized, while not a few of the cases claimed as cures by climatic influence mean but a freshly fortified organism able to keep the disease in abeyance for an uncertain period. There is no fixed limit of time permitting the positive announcement of permanent recovery by either treatment. This is not meant to disparage the well-recognized value of both procedures; in fact, we would strongly advocate combination of the two whenever feasible; by which we mean that there are no cases of purely localized unilateral renal tuberculosis which we would entrust to climatic change as the best treatment, as opposed to surgery; and, on the other hand, there are no such cases just recovering from nephrectomy where we would not seek for the patient twelve months or more of this climatic benefit.

So, if we find here tonight two rival camps ready to contend for the custody of these sadly damaged pieces of humanity, the reader may not be found a very aggressive partisan of those who claim for surgery a radical cure in renal tuberculosis, except for the cases rarely seen and diagnosed early enough; namely, those where the disease is strictly limited to one kidney.

[1] Read before the Surgical Section of the Suffolk District Medical Society, March 6, 1901.

Despite the immense amount accomplished by earnest labor in the field of tuberculosis, we have yet to hope that something more specifically curative than the knife, sanitation or the piney woods may soon be hit upon.

In other localizations of the disease the importance of early diagnosis has long been appreciated. When the kidney is involved, recognition of the fact is apt to be unfortunately tardy. The trouble is not uncommon, consequently a diagnosis of pyelitis, nephritis or cystitis should not satisfy us until the etiology has been determined, or at least most diligently sought for. To secure more satisfactory results from surgical treatment, renal tuberculosis must be detected in anticipation of, rather than long after, the objective symptoms have become so conspicuous as not alone to render differentiation of the urines difficult, but to have involved so much of other parts of the urinary tract as to preclude a radical operation. Urinary analysis in general should mean as careful a routine search for tubercle baccili as is customarily given to the other formed elements of a sediment. When this is done, wholly symptomless cases of the disease will at times be discovered. Upon this initial evidence the suspicion should be verified and smegma bacillus excluded by getting the bladder urine through a catheter, then cystiscopic uretal catheterization may at once be utilized to locate the lesion in the bladder or kidneys. We believe there is no more accurate and simple way to do this in both sexes than with the writer's double-barrelled ureter cystiscope, each channel of which conveys a flexible sterile catheter to its respective ureter; by this means both kidneys are collected from at the same time, while the same nerve influences and the same physiological conditions pertain. With specimens thus synchronously collected, minor qualitative variations in the excretions of the two glands may be given a value they could not be allowed if gathered in the ordinary fashion, that is, one after the other. It is scarcely necessary to point out the service rendered by such a double ureter catheterization in giving information about the other kidney, even if the specimen drawn from the diseased organ fails to definitely determine the presence of tubercle baccilli.

We have seen more than a half dozen cases where an erroneous diagnosis of urinary tuberculosis has been made because smegma bacilli were repeatedly present in urine voluntarily passed; but none of the individuals were subjected to any operation or lost much time with needless treatment before the mistake was corrected by collecting the urine from the bladder by catheter and then demonstrating the absence of these bacilli. In one or two of the cases, where tubercle bacilli might have had an origin anterior to the bladder, animal inoculation of the normally voided urine was relied upon to determine the non-specificity of the bacilli found. We have seen no case where urines gathered from the bladder or kidney by catheter contained micro-organisms answering to tubercle bacilli and afterwards, by

operation or otherwise, found that any error had been made.

In connection with this subject it seems worth while to allude to an ambiguity seen in a recent small brochure, "Surgery of the Kidney," wherein the author [2] cites Mendelsohn's case of nephrectomy done for pyelonephritis, supposedly tuberculous, and where quite a misleading interpretation is given to the discussion which followed the operator's report. In this it is said, "Professor Leyden called attention to the great difficulty of making a positive diagnosis of renal tuberculosis by examining the excretions from the kidney and finding tubercle bacilli, on account of the almost omnipresence of the smegma bacillus in pyelitis and the great similarity of this organism to that of tuberculosis." A novice might too readily infer from the foregoing phraseology that the smegma bacillus had a habitat in the kidney when this was affected with a pyelitis. We have been unable to find recorded any case where this micro-organism has been proven to be anerobic.

Since there are cases of renal tuberculosis where the lesions are not in open communication with the urinary channels, hence the micro-organism not possibly attainable for microscopic or inoculation evidence, it is therefore proper that the symptoms, and any other aids in diagnosing the disease, should receive some brief attention.

It is not so very unusual for an open tuberculous renal lesion to shed so few bacilli that persistent microscopic search fails to find them. Here animal inoculation should always be early resorted to.

Sometimes the subjective symptoms are quite pronounced, even in the early stages of the disease; in other cases the pains are little noticed in advanced stages of the trouble, except by the behavior of the bladder, and too often these vesical symptoms are cited as evidence that this viscus is the original and only seat of the trouble. Coming to this point of our subject, it is clear that the topic cannot be handled without some reference to vesical tuberculosis, but this will be done only so far as it relates to symptoms or influences the treatment of the original invasion.

A dull aching in the lumbar region is significant; equally so is a much more acute kind of pain referable to the kidney or ureter. When these occur as crises, associated with nausea and vomiting, renal calculus or gravel colic is most apt to be thought of.

So many cases give a history of having had systemic manifestations resembling mild malaria, that we have come to look upon them as not infrequent precursors to the more distinctly localized later symptoms.

Commonly, however, patients will say they were never ill until their present trouble began with having to urinate too often, both day and night, and not infrequently they tell that they have had several recoveries from the annoyance, but each recurrence is more persistent than the last. We had once looked upon this thamuria as the classical and almost pathognomonic symptom of renal tuberculosis. Further observation tends to show that, in the majority of cases, frequency of urination appears not until the lower segment of the ureter has either acquired a genuine tuberculous lesion, or at any rate marked hyperemia and edema have developed, with an irritable state about the mouth of the ureter. We have in one case seen such hyperemic patches in a bladder which had to empty itself every hour or oftener. After the removal of a large tuberculous kidney, the ureter being left, the bladder recovered its normal repose. In this instance other micro-organisms in addition to tubercle bacilli may have come from the kidney and been responsible for these inflammatory vesical patches. That tubercle bacilli or their toxins can act as irritants and produce hyperemia and yet not affect an implantation at such points, we have some slight reasons to suspect.

The principal objective symptoms are a kidney which is larger and more tender than normal, as well as all grades of pyuria and hematuria, besides a just appreciable or a very marked diurnal variation in temperature; loss of color and weight; a reaction to tuberculin; finally, the presence of tubercle bacilli in the urine derived directly from one or both kidneys.

Since microscopic examination of the urine so gathered from a tuberculous kidney is not always affirmative, we think a great deal of value attaches to the injection of tuberculin. This would be used where a unilateral pyelonephritis was found in an individual giving some other suggestions of urinary tuberculosis, but at the same time running a nearly normal temperature. Should a fairly typical reaction here follow the injection, and could tuberculous foci in other parts of the body be excluded, we would feel pretty sure that guinea pigs inoculated by sedimental urine from this individual kidney would develop tuberculosis.

The test of such urines by sedimentation and growing of tubercle bacilli on culture media has not yet inspired general confidence. But we advocate the employment of tube cultures in all cases of ureter catheterization in order to determine the presence of other pathogenic micro-organisms, making the planting direct with five or six drops of urine as it falls from each ureter catheter. Although the majority of such tests have yielded us no growths, it is to be hoped that by persistent use data may be gradually accumulated which will add to the much yet to be learned regarding the reasons for the different clinical manifestations and apparent responses to various forms of medicinal treatment of renal affections. We have, for instance, grounds to believe that a renal tuberculosis, attended with some other form of infection, would act and react differently from a pure invasion of either single kind.

It is gratifying and surprising that so few deaths attend nephrectomy for tuberculosis. We have had to do with five, and seen perhaps twice as many done by others, where no fatalities occurred. Some

[2] Bayard Holmes, B.S., M.D.

of these cases, however, were very sick for several days, and with a full series no one could expect less than a 5% to 7% mortality. This, and the necessary uncertainty about the apparently healthy kidney, should make us investigate every case most thoroughly before proposing a nephrectomy. Then every precaution to have the patient in favorable condition is essential. In our limited experience persistent and exhausting vomiting has caused more solicitude than any threatening anuria. Consequently, the alimentary and urinary tracts, together with the kind and quantity of anesthesia, receive most attention. Three days may be taken for gentle but effective catharsis, and during the same time much larger quantities of fluid can advantageously be given. If the heart is unquestionably sound, chloroform is the anesthetic preferred; otherwise, nitrous oxide gas and ether.

The incision necessarily varies, being influenced by the proportions of the patient, as well as the size and position of the kidney. Whatever the line of approach, it is preferably extraperitoneal throughout. With a kidney nearly normal in size and position and a fair iliocostal space, the oblique lumbar incision answers every requirement for the kidney alone, or with not more than two or three inches of the attached ureter. To excise the ureter at the sacral brim, the lower end of this oblique incision must be carried well down and inward. A lateral posture of the patient is required for this lumbar incision. If the kidney alone is to be exposed or removed, an anterolateral incision approximating the costal curve can be done with the patient on the back. With a low kidney and lax abdominal walls, the patient being in the same dorsal position, a generous initial incision along the linea semilunaris can be used advantageously when the ureter also requires investigation or removal. On reaching the parietal peritoneum this is stripped away, while at the upper end of the incision another, more or less at right angles, is made outward. Then additional stripping of the peritoneum affords excellent access to kidney, and the ureter as low as the sacral brim. When the dorsal position can be employed, we believe it will be of advantage in guarding the other kidney from a degree of pressure possibly quite injurious in some cases.[2]

During a nephrectomy for renal tuberculosis, if the disease is seen to extend down the ureter to a point below the first sacral vertebra, we are not ready to urge that a total extirpation should then, or even at a later operation, be done. Several of our observations tend to the inference that a considerable amount of tuberculous ureter can be left with comparative safety; because, now being in a functionless state of repose, this particular focus is amenable to curative systemic processes. At the same time sufficient experience has not been accumulated to assert that a routine practice based on this presumption is always the best surgery. If total removal did not necessitate such an increased operative exposure, the radical step would better satisfy the surgical indications here just as well as in dealing with any tuberculosis.

If it were thoroughly ascertained that a ureter was diseased from kidney to bladder, and the operator felt inclined to do a total extirpation or none, it might improve the patient's chances to have a primary ureterectomy of the lower half, while the proximal end of the tube was given a temporary cutaneous implantation, there to drain the kidney until an early favorable time for nephrectomy. In this order the services of both kidneys would be available for convalescence from one operation.

Again, in some such cases, by passing before operation a ureter catheter carrying in its lumen a strand of chromic gut, this latter might be secured by needle to the severed ureter with the intention of invaginating the tube as it was stripped from the peritoneal attachment sufficiently low down to permit an inguinal or vaginal incision to extirpate the stump near the bladder.

We shall purposely omit reference to partial nephrectomy or nephrotomy and drainage in these cases, if for no other reason than that your time and the limits of this paper require brevity.

Even in cases presenting tuberculous vesical lesions where only one kidney is similarly diseased, we think that nephrectomy is indicated in a certain number of such individuals as offering the best chances for extension of life and comfort. Every reasonable effort should be made to determine the condition of each kidney before any operation is done for the relief of vesical symptoms, because nothing can be gained by this latter step so long as tuberculous debris is coming into it from above. Should efforts to ascertain the state of the kidneys be unavailing, then the epicystotomy done for drainage should be utilized to at once lead a small flexible ureter catheter into each ureter mouth, whatever treatment is immediately afterwards to be given the tuberculous bladder lesions. While it is not always easy to insert these ureter catheters even with the bladder opened above the pubis for visual inspection, still by having the proper catheters already led through the urethra, and one of them identified by an outside loop of white silk, then using a very short but large calibred cylindrical speculum which can act as a coffer or partial dam over much of the region surrounding one ureter opening, careful sponging will be apt to disclose the orifice. Now, seizing one of the catheters by a delicate spring forceps a half inch from its tip, it can be inserted and slowly advanced for the necessary two or three inches by successive short grasps of the forceps. It is highly essential to note whether it is the right or left ureter which receives the identified catheter. Artificial illumination, such as that given by an electric headlight, is almost indispensable for the accomplishment of this procedure.

If you can tolerate the review of several of the cases of renal tuberculosis with which we have

[2] Non-obstructive Post-operative Anuria, Annals of Surgery, March, 1901, p. 235.

had more or less to do, some items can be presented to show the basis for the rambling remarks just made. We trust these brief histories may make as good a framework for discussion of the topic as would accrue from a larger array of published generalized statistics.

We would take this opportunity to thank Dr. McCosh and Dr. Eliot for permission to include accounts of two of their patients; and at the same time to express our indebtedness to many others for interesting material we would otherwise never have had.

CASE I. An advanced case of right renal, vesical and prostatic tuberculosis, where climate and hygiene exerted a striking temporary benefit:

A. R., male, thirty-one years, Denmark. First seen April, 1892. One year before he had first noticed thamuria and occasional hematuria. He had been in various hospitals and repeatedly searched for stone. He is now urinating every few minutes during the day and involuntarily at night. Mingled with the urine sediment I found minute cheesy particles consisting wholly of countless tubercle bacilli. Reception for the patient was immediately sought of Doctor Trudeau, at Saranac, where, three months later, he had so much improved that he at times retained urine for two hours and gained strength and weight. Although during the fifteen months of residence in Saranac he was quite ill on three or four occasions, when new foci of the disease caused crises, he felt well enough at the end of this time to insist upon returning to New York to work. Almost at once the old urinary symptoms recurred, together with loss of appetite and appearance of large tuberculous lesions of the tongue. He died within two months.

CASE II. A quite chronic right renal tuberculosis coming to nephrectomy only after the kidney was immensely distended, and had by rupture initiated a perinephritic abscess simulating one of appendical origin. Excellent operative result. The left kidney had first given symptoms:

M. H., female, thirty, single, Ireland. First seen October, 1893. Has had slight cough for years. One year ago had a fall on the back; two weeks later pain in the *left* lumbar region, with nausea and frequent urination. On entering the Presbyterian Hospital, half hour urination, after which a reflex pain along the outer anterior surface of the left thigh. Urine contains pus and a few tubercle bacilli. Cystiscopy shows some discrete patches of hyperemia over the base. Rest and vesical irrigations during four months improved the condition, but menstruation was not re-established. For nearly two years the patient was not seen, when she summoned us in January, 1896, suffering with a large fluctuating tumor filling the entire right abdomen and pointing near the anterior superior spinous process. We sent her to the Presbyterian Hospital where, after evacuation of the perinephritic abscess, Doctor McCosh removed a very large pyonephritic kidney. Recovery uneventful but tedious. The frequency of urination was at once most favorably influenced by the nephrectomy, and when last seen, in 1899, she was passing urine only five times in twenty-four hours, and was again menstruating regularly. She had been for the past two years in quite good health and doing the services of a domestic. At this time of writing it has been impossible to get trace of the patient. Since the reading of this paper we have seen the patient; she is in even better health than when last reported.

CASE III. Showing the uncertainty of finding tubercle bacilli by microscopic examination, and where the evidence of animal inoculation would probably have saved much suffering and prolonged life:

A. D., female, sixteen years, United States. First seen July, 1893. Two years before, after fresh water bathing and a long cold drive immediately following, she had a chill, and shortly experienced left lumbar pain, then frequent urination and later suprapubic pain. At times all have been so severe as to be considered and treated as if of calculus origin. She brought analyses of urine by two different examiners, one reported the finding of tubercle bacilli, the other containing the diagnosis of renal calculus. We referred her to Doctor McCosh for operation. Numerous examinations by the pathologist of the hospital failed to detect tubercle bacilli in the urine. A nephrotomy was made evacuating a moderate amount of pus. Many mountings of this showed no tubercle bacilli. Had they done so a nephrectomy would have been done at once and thus pretty certainly saved the severe suffering constantly endured by the patient. Some months later, in another city, after nephrectomy, the patient died. The kidney was said to have been tuberculous.

CASE IV. Case lacking all the usual premonitory symptoms, although the kidney showed advanced caseous destruction of several pyramids and considerable pus foci. Most satisfactory result from nephrectomy. Now nearly seven years ago:

J. D., female, thirty-three years, married, Ireland. Seen July, 1894. No syphilitic history. Anchylosis of the right knee for nine years. She has never had any lumbar pain or noticed any urinary symptoms. She entered the Presbyterian Hospital in the service of Doctor Eliot for fracture of the right femur. After three weeks, while still abed, she developed a temperature the cause of which was not apparent; the patient felt well. Pus had suddenly appeared in the urine and examination discovered an enlarged right kidney. Tubercle bacilli were found in the urine. There were occasional chills. A week later nephrectomy gave a large tuberculous kidney. She was discharged with a small sinus in the loin which closed later. The patient has had one child since the operation, and is now in good health; she can eat and drink things which formerly caused her considerable distress.

CASE V.[4] Another chronic case showing absence of all subjective symptoms in a bilateral renal tuberculosis, and where an error would probably have attended the evidence given by ureter catheterization on the right side, had it been done. A good example of sudden acute miliary tuberculosis in a life-long scrofulous subject:

A. O., male, twenty-eight, Germany. First seen August, 1894. Always sickly as a child; knee joint involvement when twelve; recovery without anchylosis. Two years ago fell while carrying a load on the shoulder, weight striking him above the sacrum. Five weeks later an abscess pointed there, and knee joint again gave trouble, not improved by immobilization and iodoform injections. Three months later I resected the joint, and two months after a tuberculous testis was removed. Just before this latter operation I examined, by way of curiosity, the urine and found tubercle bacilli, although the urine was almost normally clear and there had never been any renal or urinary symptoms. During the next year we watched the patient with interest, always finding tubercle bacilli in the urine together with a very few leucocytes. No symptoms could be elicited to suggest their place of origin and the man was gaining strength and weight

[4] Illustration of entire urinary tract, Presbyterian Hospital Report, 1899, p. 61; also New York Medical Journal, 1896.

but losing color. Four months later he was brought to the medical service of the hospital with a brief history of a rather sudden onset two weeks before of what had been diagnosed typhoid fever. On admission examination suggested acute miliary tuberculosis, but sputum showed no tubercle bacilli. Death three days later. Autopsy showed acute miliary tuberculosis of both lungs. The urinary organs disclosed two tuberculous dilatations near the middle of the left ureter and two rather small necrotic foci in each kidney. Those in the left were in open communication with the urinary channel, while those in the right were apparently not so, and, had urine been gathered by ureter catheter from this side, probably neither tubercle bacilli or leucocytes would have been found in it.

CASE VI. Case of emergency nephrectomy yielding, as expected, a tuberculous kidney. Remarkable systemic improvement as well as relief of urinary symptoms were followed five months later by a new focus of the disease and death:

W. C., male, fourteen years, United States. First seen August, 1896. One year before had fallen from a tree; three months later frequent and painful urination. Six months later another surgeon found good reason to make a suprapubic cystotomy, and removed a very large soft mortar-like calculus. At the same time he discovered a tumor in the right loin. This increased rapidly and one month later the patient was sent to me for immediate nephrectomy at the Presbyterian Hospital. The boy was much emaciated and had an immense tumor of the right kidney. The urethra was occluded and all urine passed through the suprapubic fistula. The history and present condition suggested to us that the kidney was tuberculous and had been the original seat of all his urinary disease. A kidney greatly enlarged by many pus foci was removed extraperitoneally. The greater part of a large indurated ureter was not removed. Three weeks later internal and external urethrotomy for the tuberculous obstruction of the urethra with curettage of the suprapubic sinus. Six weeks later both sinuses closed and all urine passed by the urethra. Left hospital with a gain of 30 pounds. He was feeling comparatively well when five months later I saw him with tuberculous meningitis. Death in ten days. At autopsy we noted a striking diminution in the size of the right ureter. When this case was reported[5] it was said that, in view of the non-hygienic conditions of his home, some early relapse was to be anticipated.

CASE VII. A case of bladder tuberculosis, with doubtful involvement of the left kidney, but reported to illustrate the benefit which may result apparently from a strictly hygienic life and local treatment:

C. K., male, forty-four years, United States. Seen May, 1895. No venereal disease. Father and his six brothers and sisters all died of consumption between the ages of twenty-five and forty. Both of his father's parents were consumptive. The patient, a man of fine physique, weighing 185 pounds, had believed himself to be perfectly well, except that five years ago an attack of malaria had kept him from business five or six weeks; possibly had some minor bladder symptoms a short time after, but these yielded to treatment. About January, 1893, he first noticed a drop or two of blood at the end of micturition and a slight tingling in the glans penis. Thinks he had a slight similar manifestation two years before which yielded to beechwood creosote. Frequency now amounts to every two hours; if held longer there is apt to be a little more blood. Prostate and vesicles, as well as external genitals, normal. Palpation of the left kidney causes slight pain. Urine quite muddy, with pus. Specific gravity 1.015 (and it has never been found higher). Marked trace of albumin. First examination for tubercle bacilli revealed eight or ten; never found subsequently. The afternoon temperature was 100°. Cystiscopy reveals a congested trigonum, and about the left ureter a lesion about an inch in diameter, nearly half of it an open ulcer. The patient was advised to seek an open air life in the Adirondacks. For two years he lived in the mountainous parts of New York or North Carolina with decided benefit. During this time his urinary intervals increased and blood was noted only a few times. The exigencies of life then compelled him to accept a non-confining business in New York. His attention to every hygienic detail of life was the most perfect. After his return some of the old symptoms began to trouble him, and he again sought treatment. Tubercle bacilli could not be found by microscope, and some doubts were hoped for regarding our diagnosis, but guinea pig inoculation was confirmative. At the expiration of a year or more, the slight bleeding was commonly manifest and irritability of the bladder more and more bothersome, but never of the extreme type. The old ulcer at the mouth of the left ureter was still to be seen, but smaller.

He insisted that it was impossible to give up business again and that something must be done medically or surgically for his relief. I could think of nothing more promising than a suprapubic cystotomy to permit curettage and cauterization of the single bladder ulcer and at the same time catheterizing the ureter of the questionable left kidney. Not only was this not urged, but it was most reluctantly submitted to the patient in answer to his demands for treatment. Fortunately, I believe, for us both, he was advised by friends to seek some other alternative. Going to an esteemed confrère, with my introduction, he was urged to leave New York again. When this was explained to be impossible, vesical irrigations were employed by his new physician with pretty prompt beneficial results. For the past two and a half years he has continued treatment, going into camp life during summer vacation. I have had occasional opportunities to inquire of the patient, and only a few days ago he told me that urine is now retained for from five to seven hours, and that he is practically unaware of any urinary disturbance.

CASE VIII. A case of urinary tuberculosis. Strong suspicion of a right renal origin, but proof by microscopic examination of right ureter catheter specimen was not affirmative. Animal inoculation tests should also have been made. The patient writes from Italy that he is about as well as when first seen:

A. D., male, thirty-five, Italy. Seen July, 1898. Six months before urination became frequent; pus and occasional blood noted; pretty constant pain above the symphysis. Tubercle bacilli were found at times in the voluntary urine. I catheterized both ureters twice because a marked pyelonephritis was found in the right side, but the microscope discovered no tubercle bacilli either time. Urine from the left kidney was normal. The cystiscope showed a very hyperemic and gaping condition of the right ureter mouth. Patient's vesical symptoms considerably improved during five months' hospital rest, hygiene and boric acid irrigations, and he returned to Italy.

We believe the kidney to have been tuberculous and think it unfortunate for patient, despite his present report, that tubercle bacilli were not detected in the right kidney urine so as to have justified a nephrectomy.

CASE IX. Illustrating rather unusual periodicity of symptoms in a case of pretty certain left renal tuberculosis. Microscopic examination of a single ureter catheter specimen unsatisfactory. Great fluctuations both in the condition of the patient and her left kidney during two years and a half. Present state as inferred by letter one of

[5] Medical and Surgical Report of the Presbyterian Hospital, 1897, p. 49. Renal Tuberculosis, p. 49; also New York Medical Journal.

considerable improvement over that of a year ago:

J. G., female, twenty-two, United States. Seen but once, May, 1898, when referred by Dr. Trudeau for ureter catheterization. She had had pulmonary trouble for some time. Two years ago she first felt pain along the crest of the left ilium, radiating to groin, with nausea. At that time pain disappeared on reclining. Three months ago, while at Saranac, had persistent left lumbar pain for six weeks, nausea and often vomiting. Pain had a regular afternoon exacerbation lasting five or six hours. Lost about 15 pounds. Had a slight thamuria. At the time the patient was examined when passing through New York, I did not know that Dr. Trudeau had found a few probable tubercle bacilli in the urine, and that affirmative evidence was about to follow his animal inoculations. Had this been known, the same test would have been used with the urine gathered from the left kidney. Our microscopic examination of this urine showed a pyelonephritis, but tubercle bacilli were not found.

A recent letter from the patient's mother tells that two months after this examination there was great increase in the size of the left kidney and great suffering. After another two months this was gradually recovered from. For the next two years the benefits of various climates were sought, and although different joint, skin and pulmonary complications appeared, the patient gradually got better of each, and now, with the old cough persisting, the kidney shows scarcely any enlargement and no pain, the urinary system giving scarcely any annoyance. Careful microscopic examination of urine just sent me shows no tubercle bacilli.

There is room for speculation as to whether the patient would be in better or worse condition today had nephrectomy been done three years ago. Possibly the kidney is now destroyed and its ureter occluded.[6]

CASE X. A second case of renal tuberculosis, with no vesical symptoms. Also a good example of promising radical cure by an early diagnosis and early nephrectomy:

P. A., female, thirty-four years, Germany. Seen October, 1898. Rather marked family history of tuberculosis. Well until four years ago; then a nondescript illness was improved by a trip to Europe. Two years ago first noticed occasional dull aching in the left lumbar region, gradually increasing in severity. Three months ago had severe pain with nausea and vomiting lasting three hours. Has frequently had similar half-hour recurrences since then. Pain always begins at a definite point over the left ureter on a line with the umbilicus; then radiates to kidney and back. The periods and comfort of urination not affected nor have they ever been. Has lost 20 pounds in three months. Palpation over the left kidney causes some pain. My first examination of voluntary urine showed tubercle bacilli. Cystiscopic ureter catheterization revealed no vesical lesion, and gave a normal urine for the right side, while that from the left showed a pyelonephritis and tubercle bacilli. Patient readily accepted the proposition of nephrectomy; done under chloroform, November 26, 1898. Six inches of ureter removed with the kidney.[7] The latter had but a single focus of disease at the apex of one pyramid, a few tubercles in the pelvic, while the ureter just above and for three inches below its renal attachment was greatly thickened in the submucosa, so as to favor temporary occlusion. This would appear to explain the nature of the pains experienced. After operation the patient had the advantage of six months' care under Dr. Trudeau at Saranac. She is now very active and claims to be in as good health as she has ever known. This is the only case of renal tuberculosis we have had where cystiscopy showed no vesical lesions, even a trifling hyperemia about the ureter opening.

[6] Illustration of such condition. Presbyterian Hospital Reports, 1897, p. 45.

[7] Illustration, Annals of Surgery, March, 1901, p. 229.

CASE XI. A case of pretty advanced renal tuberculosis and apparent cure by nephrectomy, although the vesical symptom of frequency still persists.

A. W., female, thirty-four years, United States. Seen October, 1898. Strong family history of tuberculosis. When twenty-three years old patient gave manifestations of a general decline; moved to the country to live and improved. Three years ago she had occasional pains in the right lumbar region and first noted frequency of urination. In 1897 the thamuria was every fifteen minutes. In September, 1898, she had chills and fever. Dr. E. E. Smith, of New York, found malarial organisms in her blood and, being struck with the urinary symptoms, examined for and found tubercle bacilli in the urine. He then referred her to us for localization of the disease and treatment. Cystiscopic ureter catheterization showed a greatly congested trigonum and a gaping edematous right ureter. Urine from the right side evidenced a marked pyelonephritis with tubercle bacilli, that for the left ureter a normal kidney. Lumbar pain and general unrest were so distressing that she eagerly accepted nephrectomy. This was done on December 7, 1898, under ether anesthesia. Nearly eight inches of the ureter was removed with the kidney.[8] The latter showed four of its pyramids nearly destroyed, while the ureter was much dilated but soft and studded with tubercles. These evidently were continuous in the part not removed. The patient made a slow but good recovery. Now she has no pain. She has gained 75 pounds and does all her own household work. The remaining diseased ureter or a bladder much contracted before the operation may be responsible for the still persisting painless thamuria. Whatever its cause, frequent microscopic examination of the urine since nephrectomy has failed to discover tubercle bacilli. Animal inoculation will shortly be made when the patient returns to New York for vesical irrigations, which she has thus far not seen fit to bother with since she and her family view the case already as a cure. Since the reading of this paper the patient's urine has responded negatively to animal inoculation, and bladder washings have greatly benefited the frequency.

CASE XII. Case of right renal tuberculosis; the strong suspicion that the left was also tuberculous appeared to warrant nephrotomy only.

D. P., male, thirty-five years, United States. Seen March, 1899. Ten years before severe laryngitis, ascribed by some consultants to tuberculosis, by others to syphilis which he had had. Six months ago he first felt occasional pain in each lumbar region, and shortly after he experienced frequent and somewhat painful urination. He has had the benefit of various climatic changes. Has lost much during past half year. He is now urinating every hour and a half. Marked pyuria and tubercle bacilli present. Palpation of right kidney painful, not so over the left. Cystiscopic ureter catheterization shows some small open ulcers about the right ureter and edematous state of its opening. General hyperemia of the entire base. A pea-sized tumor just in front of the left ureter makes it impossible to pass a catheter. The urine drawn from the right ureter evidenced a pyo-neprosis with tubercle bacilli. Patient desired nephrectomy, but his unfavorable condition and appearance of general dissemination of the disease led me to offer nephrotomy, by which considerable pus and necrotic material was evacuated. This permanent drainage was maintained with some relief of the urinary symptoms until death by exhaustion nine months later.

In this case left kidney urine was collected from the bladder while the right ureter was plugged and being drained by a catheter. In one such collection tubercle bacilli were found; at the second trial they were not. Such a test of the kidney's condition, where the bladder is diseased, is not reliable.

[8] Illustration, Annals of Surgery, March, 1901, p. 227.

Case XIII. A case of right renal tuberculosis where nephrectomy was declined, and the patient now claims she is getting well:

C. B., female, thirty-one, United States. Seen July, 1899. For past two years she has had occasional sharp pain in the right lumbar region. Six months after its appearance she noticed frequent urination and sometimes bloody urine. The right kidney is found to be hard and enlarged. It is tender and nearly all below the costal margin. Tubercle bacilli have at times been found in the voluntary urine. Cystoscopic ureter catheterization shows no general vesical lesions, but the mouth of the right ureter is swollen and hyperemic. Contraction of the muscular coats of this ureter upon the catheter are evidently painful, for with each intermitting discharge of several urine drops the patient complains. Urine from the right kidney shows a pyelonephritis and tubercle bacilli, that from the left kidney is normal. Judging from behavior and expression this patient had much lumbar pain, and the case seemed unusually favorable for a nephrectomy; when proposed however, she left the hospital. Efforts to learn her present condition brought a letter from her "clairvoyant physician" and one from the patient. That from the latter is the more explicit, and in part is as follows: "I have been doctoring on and off since I left the hospital, with different ones, and at last I think I have struck the one that is going to cure. . . . I have been gaining slowly ever since I left the hospital, and feel very thankful I did not stay for the operation you were going to put me through. . . . My health is better in every respect, and I hope in short to be a well woman. I have been under entirely too many operations for my own good already."

Case XIV. Case showing chronicity and good behavior of a tuberculous kidney without treatment:

M. I., female, sixty-two years, United States. Seen May, 1899. Father and nearly every one of his immediate relatives died of consumption. The patient has always been delicate and nervous. Has had many serious illnesses. Four months ago, when lifting, felt a pain in the left lumbar and inguinal region radiating to the perineum. Hourly urination with burning, moderate afternoon rise of temperature. Urine contains considerable pus, marked trace of albumin and many tubercle bacilli. Left kidney is tender and palpable. Cystiscopy shows no open bladder lesions but a congestion and edema about the left ureter. While in the hospital the vesical symptoms were considerably improved, apparently by boric acid irrigation. Then she declined further observation or treatment. Now, after much search, we find her in an old ladies' home looking better than two years ago, and claiming that her side is not so painful, nor her urination so frequent as when in the hospital, but she will permit no examination.

Case XV. A second case of apparent cure of renal tuberculosis by nephrectomy, but with persistence of frequent urination:

I. C., male, thirty-two, Hebrew. Seen August, 1899. Tuberculosis on the mother's side. The patient has had a slight cough as long as he can remember, but has always been unusually strong and vigorous. Seven months ago he first felt dull pain in the right loin and noticed frequency of urination. He entered a hospital where he had at times high temperature. He left suddenly, frightened at a proposed cystiscopy. His lumbar suffering has steadily increased; now urinating every fifteen minutes. Neither kidney palpable, but firm pressure over the right causes some pain. Our first examination of urine shows tubercle bacilli. Cystiscopic ureter catheterization reveals a congested trigonum with more marked hyperemia and edema of the right ureter. Right kidney urine evidences a pyelonephritis and tubercle bacilli. Urine from the left kidney is normal. He desires immediate removal of the diseased organ. This was done under chloroform, August 29, 1899. The kidney[9] was large, the cortical surface and pelvis were studded with large tubercles; it is presumed that the ureter was also implicated, but for reasons it was not deemed advisable to explore or try to remove any of it. The patient's abdomen was large, its muscles were in a state of tonus during the operation, and an old appendicitis cicatrix, which was almost a hernia, was to be avoided. The patient made a good recovery. At times, while in the hospital, he had three-hour urinary intervals, but now he says they are as often as every twenty or thirty minutes. Many subsequent and some very recent microscopic examinations have failed to detect tubercle bacilli in the urine. The former pain is gone and he works hard as a peddler.

Here, as is suspected in the patient A. W., Case XI, the presence of a diseased ureter may be the cause of the thamuria. But in this patient's case, also, there has never been any intravesical treatment since the operation.

Case XVI. Illustrating the occasional difficulties of proving a tuberculous kidney to be such. This case might have responded negatively to the animal inoculation test, probably affirmatively to tuberculin:

P. M., male, forty years, Italy. Seen November, 1899, to examine bladder and collect urine, at request of Dr. Bolton. Patient had had malaria in 1884, otherwise healthy until April, 1898, when micturition was as frequent as thirty or more times a day and continued so for two weeks, then improved materially. Four months ago pain was first felt in left lumbar region, continuous and does not radiate. Little or no pain now during urination, but this is frequent. Left kidney is palpable and tender.

Cystiscopic ureter catheterization shows hyperemia and swelling about the left ureter. Urine from the left kidney shows a marked pyelonephritis, but no tubercle bacilli. Urine from the right kidney normal. The voluntary bladder urine also failed to reveal tubercle bacilli. In this case Dr. Bolton made a successful nephrectomy. From his report[10] it is only necessary here to quote the following: "The kidney was considerably enlarged . . . presenting several rounded eminences . . . filled with semifluid pus and caseous material. On section this lower half of the kidney is converted into three distinct and several smaller cavities, one of which is larger than the others, is empty and communicates with the pelvis. The walls of all these cavities are very actively inflamed . . . and on microscopic examination show numerous miliary tubercles . . . smears of the contents of these cavities show neither tubercle bacilli nor other bacteria after a lengthy search. In the sections, however, tubercle bacilli were demonstrated in the miliary tubercles."

Case XVII. In this case there was a probable mistake in not making a cystiscopic ureter catheterization and urging an immediate nephrectomy if tubercle bacilli had been found in urine of the suspected kidney. The case also illustrates temporary climatic benefit, and the fallacy of bladder drainage when either kidney is the seat of tuberculosis:

F. M., male, twenty-nine years, United States, fireman. Seen May, 1900. The patient has always been well and strong, but at times during the past two years he has had mild attacks suggesting malaria. Five months ago, during the winter months, his duty as fireman obliged him on three occasions to stand for an hour or more in the cellars of burning buildings when the water was above his waist. Two weeks after the

[9] Illustration, Annals of Surgery, March, 1901, pp. 231 and 233.
[10] Annals of Surgery, June, 1900, p. 749.

last such exposure he experienced a pain in the right lumbar region, together with bloody and frequent urination. Now, on entering the hospital, he urinates every half hour and has a slight afternoon rise of temperature. Characteristic reaction to two milligrammes of tuberculin and tubercle bacilli found in the urine. He has had, elsewhere, a great deal of bladder sounding for stone, so we make no instrumental examination, but advise an immediate change of air and to report on his return. We have not seen him since, but learned the following from his wife. He went to the Loomis Sanitarium, Liberty, N. Y., for two months, where he gained 14 pounds, besides being able to take long walks without pain and hold his urine for four hours. He then felt well enough to take up work again. Two days after reaching New York the hematuria and frequency recurred, and, continuing to get worse, he one month later entered the Homeopathic Hospital where a suprapubic cystotomy was done for permanent drainage. He has never left his bed during these five months, and his death is daily expected.

CASE XVIII. A case of right renal tuberculosis, where postponing nephrectomy may have been a mistake:

E. N., female, twenty-two years, United States. Seen August, 1900. One and a half years ago, and six months after the birth of her child, she first experienced frequent and somewhat painful micturition lasting only three weeks. Some two months later the annoyance recurred, to be again recovered from. But for the past seven months these symptoms have been continuous and are intensified just before menstruation. Has had no pain in either lumbar region, but the right kidney is distinctly palpable and tender. Cystiscopic ureter catheterization shows only some hyperemia and edema about the right ureter. Urine from the right kidney evidences a moderate pyelonephritis and contains tubercle bacilli. Left kidney urine normal. As it was the middle of a hot summer, when the patient would evidently derive great benefit from country air and be in better condition for operation, I sent her to the mountains for two months, to report on return. A letter written two weeks after she had reached the Catskills told of improvement. She has not been seen since. To properly complete this history persistent search has been made for the patient, but resulted only in an indirect report that she is now very ill, her whereabouts being withheld.

A retrospect of our own limited material leads to the conclusion that too great pains cannot be taken by physician and surgeon to determine the location and extent of the disease before determining upon the treatment. The integrity of the other kidney, of course, has great bearing on the surgical aspects of any case. To determine in any particular case just what rate of progress the disease may pursue if left untreated, or what degree of immunity from some of the annoying symptoms we can promise the patient by a nephrectomy, is not easy.

In ward hospital cases the immediate operation appears to be the only alternative. For those who can afford climatic changes and rest a careful preliminary observation of the existing conditions of the urinary tracts should precede their travels, and the same examination, when at all indicated, should be repeated in order to keep posted regarding such an advance of the disease as to call for operation.

L. Emmett Holt has been chosen clinical professor of diseases of children at Columbia University.

Clinical Department.

ASTHMA.[1]

BY F. P. EMERSON, M D., BOSTON.

IF we turn to general treatises on internal medicine, we find the pathology of asthma very indefinite. In fact, there is a description of the symptomatology, and not of a pathological process at all. At one time it is stated that there is a hyperemia of the bronchial mucous membrane, with a characteristic exudate of mucin due to pneumogastric or vasomotor functional disturbances. At another that there is no lesion whatever, and the condition is a pure neurosis, the exciting cause being anywhere in the body, with morbid changes found at autopsy due to the resulting chronic bronchitis pulmonary emphysema and right ventricular hypertrophy with dilitation. If we turn to special investigators, there is not here that unanimity of opinion we would expect. Some authorities considering it a vasomotor bronchitis analagous to the rhinitis of hay fever, and that both are a neurosis, which in their chronic form become a neurotic habit due to an unstable condition of the nervous system. Others attribute importance to a psychic influence with only occasionally a local disorder. While others assert that the condition is due to the individual as a whole and not to any particular peripheral irritation or to varying ones. A few favor the auto-toxemic theory, while an increasing number claim that the whole question turns on the integrity of the respiratory function of the nose, and that the essential condition is an ethmoiditis amenable to treatment.

The following cases are offered as simply showing the trend of my observations, and not the final word in this disorder:

CASE I. Spur opposite Middle Turbinate.

CASE I. Miss R., single, thirty years. Born in Woburn. Seen November 20, 1896.

Family history.— Negative except father's cousin, who died of asthma.

Past history.— Had pleurisy and pneumonia seven years ago. Sick five weeks. Asthma commenced two years ago, the attacks increasing in frequency and duration. Menses regular. Some cough all the time, but only a little between the paroxysms. Signs of bronchitis general, but more

[1] Read before the Clinical Club, March 11th, and the Roxbury Clinical Record Club, February 5, 1901.

marked over the left lung, and quite free at the apex of the right. Heart action negative. Bowels regular. Has lost fifteen to twenty pounds of flesh and is cyanotic, with the stooping shoulders of a confirmed asthmatic. Changed residence, as the parents thought she had phthisis.

Present illness.— First seen November 20th in an acute attack, and by December 17th she had so far recovered that she went in town; took cold and had a relapse. This history repeated itself, so that it was in the early spring before she was in condition to undergo any radical local treatment. At this time examination revealed a spur in the right naris opposite the middle turbinate, and well back on the vomer, which was removed. The attending subacute rhinitis and ethmoiditis received appropriate treatment, and she rapidly gained flesh and strength, and has since worked in her father's bakeshop without any relapse, which now covers a period of five years.

Case II. Ridge running through the Inferior Meatus.

Case II. Mrs. H., age twenty-eight years, was referred to me by Dr. C., January 23, 1900. Is now being treated for nervous exhaustion, and comes to me on account of sneezing hydrorrhea; asthmatic breathing and cough, particularly on rising, which had followed a cold the October previous.

Family history.— Negative.

Present history.— Married four years. Three years ago overworked; one miscarriage followed by some local operation. Good recovery. Menses regular but scanty. Has frontal headache and backache. Pupils dilated. Asthma constant in the morning.

Examination.— Temperature and pulse normal. Chest negative; cough constant. Acute rhinitis. Left naris encroached upon by a ridge opposite the inferior turbinate. No separation of cartilage. No myxomatous tissue. Second turbinate normal. On right side ethmoid cells covered by acute secretion, with anterior and posterior discharge.

Treatment.— No internal remedies given, but cough diminished and all symptoms subsided with the cure of the ethmoiditis. She has now been free from asthma one year, although her general health remains poor.

Case III. Mrs. P., 75 years. Born in Yarmouth, N. S. Six children well.

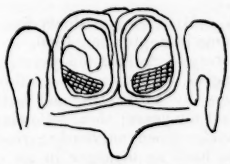
Family history.— Father died at eighty years; always well. Mother died at ninety years; always had asthma, as did her five sisters. One brother died of apoplexy; two sisters of phthisis; one sister of apoplexy, and was always an epileptic.

Past history.— Had croup as a child, beginning at one week. At seven years had asthma badly until she was ten, and has been entirely free until two years ago, when, at seventy-three, she had a nasopharyngitis followed by pneumonia, and has had asthma continuously since with the exception of two days while away in the summer. Since the nasopharyngitis there has been continuous dropping from her head, and a sensation of stuffiness on the right side which she had not had before.

Present history.— Was wiry and active and remarkably well until two years ago. Heart, lungs, kidneys and bowels normal. Stomach occasionally becomes disordered, usually from constipation. Some arteriosclerosis but not marked. Commenced local treatment January, 1901.

Examination.— Nares narrow and a little more free on the left side. Mucous membrane thin

Case III. (*a*).— Adhesion between Middle Turbinate and Septum; both Middle Turbinates cystic anteriorly.



Case III. (*b*).— Middle Turbinates hypertrophied posteriorly.

and not injected. Inferior turbinate not enlarged, and normal space between it and the septum. Middle turbinate anterior ends both cystic, and on the right side there is an adhesion to the septum, with cell proliferation opposite the second turbinate. The nares being narrow, the whole space between the septum and the nasal wall is filled, and on the right side there is marked obstruction to drainage from the ethmoid cells. No myxomatous degeneration. There is free dropping into the pharynx, and a sensation of stuffiness on the right side. During asthmatic attacks this side is blocked up, and on the inhalation of volatile remedies much mucous is released, and the attacks are always relieved temporarily. Syringing brings away characteristic flocculent mucous from the ethmoid cells. Asthmatic attacks start with a nasopharyngitis followed by

bronchitis, and at one time with pneumonia. Septum normal and also the columnar cartilages, with no thickening of the vomer posteriorly. Larynx normal and urine negative.

Treatment.— The adhesion between the septum and turbinate was relieved and the ethmoiditis cured. Local treatment, which was commenced January 1st, stopped all dropping posteriorly, and in two weeks the asthma ceased, being the first cessation, since it began two years ago, except for two days. This immunity still continues April 1st, at date of writing.

CASE IV. (*a*).— Second Turbinate Myxomatous; Septum deflected, involving Triangular Cartilage and Vomer.

CASE IV. (*b*).— Posterior extremity of Inferior Turbinate presents Cauliflower Hypertrophy.

CASE IV. Miss C., age thirty-five years, was referred to me in September, 1900.

Past history.— Asthma ten years. History of nasopharyngitis, which would be followed in four or five days by bronchitis and asthma. Had taught school ten years; then, following an attack of grip, broke down nervously; recovered and now works hard as manager in an office down town.

Family history.— Negative.

Examination.— Columnar cartilage dislocated into left naris. Triangular cartilage deflected to the left, involving the vomer, with marked cell proliferation opposite the second turbinate. Inferior turbinate hypertrophic, and middle turbinate anteriorly seat of myxomatous degeneration, especially on the left side; ethmoiditis; posterior hypertrophy of both inferior turbinates, with cauliflower appearance, and also posterior hpyertrophy of second turbinate. Tonsils fibrinous; chronic catarrhal process in both ears, with diminished hearing and feeling of obstruction in right ear from closure of the Eustachian tube. Heart and lungs apparently normal, except for the bronchitis.

Treatment.— The columnar cartilage was removed on the left side, and also the myxomatous tissue and both posterior hypertrophies. Ethmoid cells were cleared out and the tonsils opened up. Tonics and diet. For fifteen months previous to treatment she was never entirely free from a sense of weight and tightness across the chest, and during most of this time averaged to be up at night two out of three nights, generally from 3 to 5 A.M. Commenced treatment the middle of September, and was up as usual through November, but since then she has not been disturbed except two or three nights following a cold. For the last two months she has felt no chest discomfort or pressure, and there is very little post-nasal discharge and no asthma.

CASE V. Septum deflected to the right; horizontal Ridge through Inferior Meatus.

CASE V. Mrs. S. was referred to me August 8, 1900, by Dr. A., with the following history: Dr. A. was called at 11 P.M. and found the patient with an acute nasopharyngitis following exposure after being overheated. She awoke in the night with a smothered feeling accompanied by cough and wheezy respiration. Relieved by poultices and morphia. History of a previous attack the August preceding, which lasted six months, accompanied by sneezing, with pain and discomfort over the bridge of the nose.

Past history.— Mrs. S. was born in Scotland, and as a girl had repeated head colds. Three years ago she moved to Vermont, where she was apparently well. She came to Boston in April and in August she had the attack as given above, which lasted six months, and then came on the succeeding August, when seen by Dr. A.

Family history.— Negative. She is robust, with two healthy children. No asthma in the family.

Examination.— The septum is deflected to the right, including all the triangulur cartilage, and through its lower part is a horizontal ridge extending back through the inferior meatus and touching the inferior turbinate, so that the right side is practically occluded and covered with acute secretion. There is moderate posterior hypertrophy of the inferior turbinate. There is an anterior and posterior ethmoiditis in the acute stage.

Treatment.— The ridge was removed and the ethmoiditis cured. April 1st, she remains well, and has had no cold or asthma during the winter.

GENERAL SUMMARY.

The foregoing cases are not sufficient in number, nor have they been under observation for a

period warranting any definite conclusions; but they are offered because here in every case is a definite pathological condition found in the respiratory tract, where we would logically expect it as a sequel to the nasopharyngitis, a clear history of which was obtained either as an acute or subacute inflammation in every case. While the gross abnormalities of the nose were corrected, and the general condition improved as far as possible, this had no apparent effect on the asthmatic attacks, which, however, yielded readily to local treatment, with freedom from recurrence in proportion as we were able to control or cure the ethmoiditis.

A CASE OF TRICHINOSIS.

BY GEORGE G. SEARS, M.D., BOSTON.

M. D., an Italian laborer about twenty-four years old, was admitted to my wards in the City Hospital, December 6, 1900. Six days before entrance he was attacked with pains in the legs and arms and a slight diarrhea, which was soon followed by constipation. He felt feverish and chilly. Soon after the appearance of the first symptoms he noticed considerable swelling of his face. He was a well-developed and nourished man, whose puffy face and eyelids, combined with his pallor, suggested an acute nephritis. The skin was hot and dry. The forearms and legs were swollen, the result rather of a general increase in the size of the muscles than of any change in the skin, which was not edematous. There was tenderness along the outer sides of both tibiæ, as well as in the muscles of the calves, thighs and forearms, though in the latter situation it was less marked. The heart was laterally enlarged, and later a soft systolic murmur developed over the pulmonary area. The liver and spleen were normal. The tongue was heavily coated. A blood count showed 16,200 leucocytes, of which 17½% were eosinophiles. Two days later the white cells numbered 9,500, 13% being eosinophiles. The reds numbered 5,240,000, and contained 90% of hemoglobin. The urine was concentrated, but was not otherwise noteworthy.

December 10th. A well-marked urticarial eruption appeared over the trunk and thighs. The face is less puffy and the muscles less tender.

December 17th. The temperature, which reached 104° as its highest point and closely simulated typhoid fever in its course, returned to normal by lysis two days ago. Swelling and tenderness of the muscles had gone. The cardiac area was enlarged and extended three fingers' breadth beyond the right sternal border, and on the left one-quarter inch beyond the mamillary line. No murmur was heard. The liver reached from the fifth space to an inch below the costal margin, but the spleen could not be felt. The white cells numbered 10,800, and contained 31% eosinophiles.

White counts made on December 19th and 23d, and on January 3, 1901, showed, respectively, 9,800, with 39% of the eosinophiles; 12,400, with 33%, and in the last count 23% of the eosinophiles.

He improved steadily and was discharged January 3d. His muscles were still weak and flabby, but the heart had returned practically to within normal limits. A piece of the left gastrocnemius was removed on December 8th and submitted to Dr. Mallory, who reported acute myositis with occasional degeneration of muscle fibres with infiltration with leucocytes. No trichinæ. Ten days later a larger piece was removed from the right gastrocnemius, in which trichinæ were so abundant that thirteen were seen in one microscopic field.

The preceding case is the twenty-fifth which has found its way into literature since the discovery at the Johns Hopkins Hospital of a marked eosinophilia in trichinosis. All have been reported by American observers, and all have confirmed the first observation, with the exception of a fatal case reported by Howard, in which no differential count was made ante-mortem. An increase in the number of eosinophilic cells has been found as early as the fifth day, the earliest date on which a count was made, and in a case reported by Stump they still composed 15% of the whole at the end of four months. The proportion has at times reached extraordinary heights, 60% being exceeded in several instances, while in a case reported by Kerr it was over 80%. It is noteworthy that the higher counts were made comparatively late in the disease, days or even several weeks after the initial symptoms, and even after the fever had gone down and general improvement had taken place in the patient, so that, while the migrations of successive crops produced by the parent worm in the intestine might account for the earlier variations, they do not seem to explain the large numbers which appear so late that reparative processes must have already begun. The severity of the disease seems to have no effect on the relative number of these cells, but it may influence the extent of the leucocytosis.

Medical Progress.

RECENT PROGRESS IN OTOLOGY.

BY PHILIP HAMMOND, M.D., BOSTON.

ANATOMY AND PHYSIOLOGY.

Zimmerman[1] advances the theory that sound vibrations are transmitted through the drum to the air of the middle ear, and thence directly to the labyrinth, without the assistance in any way of the ossicular chain. Spear[2] states that in many cases the presence of the drum is an actual hindrance to hearing, and shows that the drum may be punctured with impunity. In the case of small open perforations, most excellent results are obtained in his hands by the use of a small disc of absorbent cotton placed over the opening.

The relationship of the facial nerve to the mastoid process has been studied by Joyce,[3] of Dublin, on a series of 30 temporal bones with the following results: (1) The facial nerve lies altogether in front of the mastoid process, and a drill sent straight in from any point on the surface of the latter cannot injure the nerve; (2) in 43.3% of the cases the facial nerve was more superficial than the external semicircular canal, and in an equal number of cases the opposite of this was true; in the remaining 13.4% these structures were the same distance from the surface.

E. Amberg,[4] from a study of 17 temporal bones, is inclined to agree with Trautmann, of Berlin, who says that displacement of the lateral sinus is due to and is indicated by asymmetry of the skull, and that it is usually placed farther forward on the right side.

Okade [38] concludes, from a study of 111 skulls, that one can obtain no trustworthy guide from the anthropological form as to the presence or absence of the so-called danger points in the temporal bone.

Arthur Cheatle,[3] of London, discusses the anatomy of the petrosquamosal sinus, and reports 2 cases in which at autopsy it was found that there had been an extension of the septic process through this aperture.

AURICLE.

Zeroni [5] reports 5 cases of carcinoma of the ear. The diagnosis in each case was confirmed by microscopical examination. The first was an epithelioma of the auricle; amputation, recovery. The second case was an epithelial carcinoma involving nearly the whole temporal bone, with perforation into the cranial cavity. The disease was too far advanced to admit of operation, and the patient died. The third was an epithelial carcinoma of the auricle with swelling of the lymph glands behind the ear, in neck, and one over the clavicle. Auricle amputated, cartilaginous portion of the external meatus, and swollen glands removed; recovery. The fourth was a case of epithelial carcinoma of the auricle extending to the temporal bone; perforation into the cranial cavity; meningitis; death. The fifth was an epithelial carcinoma arising from the middle ear; extension inward; death; no autopsy. All the patients were over forty years old, three over sixty.

Lermoyez [6] describes two varieties of eczema of the ear; the acute, which is usually moist, and the chronic, which is usually dry.

CANAL.

Schwartze [7] has devised an operation for the relief of atresia of the meatus, which consists of detaching the auricle and cartilaginous meatus posteriorly down to the structure, which is then removed, the walls of the canal being slit horizontally and sutured backward, as in the radical operation. He does not ordinarily leave a permanent opening behind the ear. In 11 cases on which he has performed this operation, only 2 were unsuccessful; and it is a significant fact, in view of the poor results generally attending such operations, that in the 2 cases where no bone was removed from the posterior wall of the canal a poor result was obtained. The author naturally makes the suggestion that at least a portion of the bony canal be removed in these cases.

FOREIGN BODIES.

Many cases of injury to the drum caused by too zealous efforts to remove foreign bodies have been reported during the past year. Lermoyez [6] points out that it is the unskilful efforts to remove foreign bodies that does harm, rather than the object itself. "Hundreds of lives might be saved every year if physicians, nurses and parents realized that a foreign body in the ear does no harm as long as it is let alone. Under ordinary circumstances the syringe is the best means of removing a foreign body."

Sturrock [8] has employed suction in the removal of smooth foreign bodies from the canal, using for this purpose a syringe attached to a piece of rubber tubing dipped in glycerine.

Church [9] reports the case of a patient who had experienced pain in the right ear at intervals for two years. Examination showed the ear to be filled with epithelial scales and wax. After removing considerable of this, a large live tick was found embedded next the drum.

In a case where a piece of rubber from the end of a lead pencil had become tightly wedged in an ear, rendering its removal difficult, Macaskie [10] placed against it a string, previously dipped in a strong adhesive solution. This was allowed to remain for twenty-four hours, when no difficulty was experienced in removing both string and rubber.

DRUM MEMBRANE.

Packard [11] reports several cases of traumatic rupture. Sudden condensation of air in the meatus is a common cause of this accident. He calls attention to the fact that at the battle of Santiago, when the men did not have time to take the necessary precautions, many ruptures of the drum membrane occurred; while at the battle of Manila the men protected their ears with cotton, and consequenlty no such injuries were reported.

Richards [12] reports a case of traumatic rupture of the drum caused by a stream of water from a fire hose.

Tuttle [13] saw a peculiar case in which a hairpin had been accidentally forced into the ear of a sleeping patient.

ANESTHESIA OF THE DRUM.

Gray [14] has used cocaine in equal parts of alcohol and anilin oil for the relief of pain in doing paracentesis. The formula he employed consisted of five parts cocaine with fifty parts each of the solvents. He reports very good results from the use of this local anesthetic. (This solution has been tried repeatedly in the writer's clinic with absolutely negative results.—ED.)

AURICULAR CATAPHORESIS.

Ferreri[9] conducted a series of experiments with a current of five milliamperes, one pole covered with felt being introduced into the meatus, the other being applied over the mastoid of the same side. Various solutions were used in the canals, and the results carefully noted. Regarding his observations, the author says: "In conclusion, the various experiments referred to have not demonstrated that, under the action of an electric current, the medicaments applied (either in solution or in gelatine discs) to the tympanic membrane and to the mucous membrane of the cavity are absorbed. The results demonstrate that auricular therapy cannot count galvanic cataphoresis among its efficacious resources."

ACUTE MIDDLE EAR DISEASES.

Würdemann,[15] in an article on "Otitis Media in Children and its Treatment," deplores the general ignorance of the medical profession in regard to recognizing the seriousness of inflammations of the middle ear. Many physicians never look at a sick child's ears, and it is common practice to allow trouble to develop there without any attempt at examination until the ear ruptures of itself. Otitis media is mainly a disease of early life. "If properly treated and seen early enough, acute inflammation of the middle ear seldom or never results in chronic suppuration, and I state with all the emphasis in my power that chronic suppuration of the middle ear is positively the result of either neglect, improper or insufficient treatment."

Barth[1] found, in 600 infants ill with various affections, 80% with a lesion of the middle ear. Many of these cases escape detection during life; the middle ear may be full of pus, yet present no other physical change than a slight convexity of the drum, injection being absent.

Ponfick's well-known tables show that as a result of 100 consecutive autopsies of infants there were only 9 with normal ears.

Randall[16] points out that it is not absolutely necessary to have many instruments for the examination of the middle ear, but that it is the eye and hand of the observer that is all important. He also calls attention to the fact that nearly all experts are on record as to the small value of the watch as a test, and recommends the whisper and voice tests as more practical and satisfactory.

Bishop[17] recommends the use of hot tobacco smoke in the treatment of acute inflammation of the middle ear.

Einis[18] uses glycerine and carbolic acid in the auditory canal as soon as the membrane shows redness.

Boucher[19] is opposed to the hasty performance of paracentesis in acute catarrhal otitis media. When it is done it should be under strict asepsis, and the meatus should be packed gently with a strip of iodoform gauze.

Halsted,[20] in discussing the significance of earache in children, finds that:

(1) Earache in children is generally caused by acute inflammation of the middle ear, suppurative or catarrhal.

(2) Infants and young children may have suppuration in the middle ear without giving satisfactory evidence of pain or without rupture of the drum.

(3) In the absence of other known cause for pain, from which a child is evidently suffering, the first cause to be thought of should be acute otitis media, and this calls for an examination of the drum membrane.

(4) It has been shown by examination of the middle ear during life and post mortem that purulent otitis media is nearly always present in acute infectious diseases of the gastro-intestinal and respiratory tracts in young children, especially in gastro-enteritis and bronchopneumonia, to which diseases it probably stands in a causative relation.

(5) The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata, is the result of unrecognized and untreated abscess of the middle ear.

(6) Repeated earaches in children are ordinarily but a sign of acute exacerbations of a chronic otitis media resulting from adenoids.

(7) In adult life, so-called catarrhal or progressive deafness is often but a final stage of otitis media, which had its beginning in early childhood, when it was due to adenoids, and practically curable.

Leutert-Konigsberg,[39] in a series of bacteriological examinations in cases of mastoid infection following acute otitis media, found pathogenic organisms in the following order of frequency: Streptococcus, pneumococcus, staphylococcus, pyogenes albus and tubercle bacillus. In sinus thrombosis the streptococcus was usually found alone.

CHRONIC NON-SUPPURATIVE OTITIS MEDIA.

Bonnier[21] has noticed that even before a patient is aware that any hearing has been lost, he will hear better by bone conduction.

Lucæ[22] still believes that many cases are benefitted by means of his pressure probe, especially where the disease has not existed too long.

Leavitt[23] has devised an instrument for the use of hot air in the treatment of middle ear catarrh.

Fischerich[24] uses a 2% aqueous solution of pilocarpine injected into the tympanic cavity through the Eustachian tube. This treatment is continued daily for a month, and he considers the results surprisingly good in cases of long-standing sclerosis.

Burnett[9] has removed the incus for the relief of vertigo with complete success in 27 cases. His theory is that the dizziness is caused by an increase of the labyrinthine pressure due to impaction of the stapes in the oval window, without corresponding outward movement of the membranes of the round window.

McCaskey[16] calls attention to the fact that vertigo may be of gastric origin and reports a case

in which, through lavage, etc., the patient made a complete recovery.

Ballenger[25] advocates tenotomy of the tensor tympani muscle for the relief of deafness and tinnitus in certain cases. He gives these three indications for operation: (1) Retraction of the drumhead due alone to shortening of the tendon of the tensor tympani. This is rare; (2) if the focusing or selecting power of the ear is intact, and there is retraction of the drumhead, it is more probable that the operation will be successful than if the focusing power is lost; (3) politzerization, followed by relief of short duration, is sometimes a favorable indication. If the tendon is shortened the drumhead is so forcibly retracted that the air is soon forced from the tympanum — perhaps in a few seconds or minutes. Unfortunately, there are other conditions that will cause the inflation to last but a few seconds; namely, adhesive bands and shrinkage of the ligaments and mucous folds arising in the superior and outer wall of the tympanum, and attached to the head of the malleus and body of the incus. It is not always easy to determine whether the retraction is thus complicated in its origin.

CHRONIC SUPPURATIVE OTITIS MEDIA.

Felt[26] says a suppuration of the middle ear not kept up by necrosis, polypus or a foreign body, is usually chronic because (1) the tissues are lowered in vitality; (2) the septic material is active; and (3) the drainage is poor. When the discharge is profuse he believes in frequent syringing.

Barbee[27] states that a chronic suppuration is always the result of neglect or of improper treatment during the acute stage.

Oaks[28] states that cholesteatomatous masses may be prevented from accumulating by the instillation of boracic and salicylic acids in alcohol. When the mastoid is involved, the earlier it is operated on the better.

Richards[29] believes in capillary drainage in the treatment of both acute and chronic suppurations of the middle ear. In case the patient cannot be brought to the office sufficiently often for this treatment to be administered by the physician, he directs some member of the family to use dry treatment for the ear. He prefers gauze to absorbent cotton, and is not in favor of having the ear syringed at home.

Phillips[30] advocates the use of pure carbolic acid in the treatment of chronic suppurative otitis media, and in cases where purulent processes have involved the mastoid. He leaves the acid in contact with the tissues from thirty to sixty seconds, and then applies alcohol as an antidote.

Fleming[9] reports a case in which a growth filling the external canal was treated for six weeks without materially altering its condition. Microscopic examination showed the mass to be a true fibroma, and the patient finally consented to enter the hospital for its removal. After making a post-aural incision, the growth was snared out and the base cauterized. In about two weeks free granulation tissue began to develop in the tympanic cavity, necessitating further curettement.

MASTOID.

McKernon,[12] after a comparative test of the value of heat and cold to abort inflammation of the mastoid, has concluded that cold is by far the better. His usual method of treatment is to leave the cold against the mastoid for twenty-four hours, and then if the tenderness has not entirely disappeared it is reapplied for another twelve hours. If there is still no improvement he operates without further delay.

Dench[31] advises early operation in all suspected cases of mastoiditis, and lays stress on the fact that operation is absolutely harmless.

H. Knapp[32] states that mastoiditis is quite frequent in children, and that it is much more difficult to obtain a successful result following operation than in adults.

Oppenheimer[15] finds that percussion of the acutely inflamed mastoid is of no value as an aid to diagnosis, because light percussion does not produce any sounds that can be compared with the normal side, and when deep percussion is tried the pain is too great. Furthermore, dulness does not indicate the presence of pus, as the same sound may be obtained when edema or sclerosis are present.

Among recent operative procedures on the mastoid is that of Küster,[33] whose method is as follows: An incision is made downward behind the auricle, continued posteriorly across the tip of the mastoid, and then upwards as far as the top of the original incision, giving a U-shaped cut. The periosteum is pushed aside slightly, and with a small chisel and mallet the same outline made in the bone, which is then pried up, leaving the outer shell of the mastoid attached to the superficial tissues. After opening the antrum, this is turned down again, a small notch being made in the lower part for drainage. It is claimed that the superiority of this method lies in the fact of its giving quicker healing, and resulting in a smaller deformity.

Grunert and Zeroni[34] have both observed the frequency with which mastoiditis is caused by the use of the nasal douche.

Ballance,[35] in the treatment of acute cases, believes that only the antrum and any cells which may be suppurating should be opened, but that the tympanum and meatus should be left undisturbed. On the other hand, in operations for the cure of chronic otorrhea, the simple opening of the antrum can be of little value.

SINUS THROMBOSIS.

McKernon[36] has presented during the past year an exhaustive study of this subject, together with the report of seven cases. In all cases he believes in thoroughly exposing the sinus, and then in aspirating, to determine the presence or absence of fluid blood.

Viereck[1] believes that ligation of the internal jugular vein should always be done before opening

the sinus, as it is much more certain to prevent pyemic infection.

Randall[37] is inclined to believe that ligation is not necessary in all cases, and urges the importance of rapid operating. He considers the diagnosis a most difficult one to make.

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Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

Regular meeting, March 6, 1901, Dr. F. S. Watson in the chair.

Dr. Watson: It gives me much pleasure to present to the society a gentleman who has, as most of you know, done such admirable work in advancing our knowledge upon the subject of renal tuberculosis and tuberculosis of the genito-urinary organs in general—Dr. F. Tilden Brown, of New York.

Dr. Brown read a paper on the

DIAGNOSIS AND TREATMENT OF RENAL TUBERCULOSIS.[1]

Dr. Arthur T. Cabot: Dr. Brown's paper seems to me exactly the sort of paper that is called for in the present position of this subject. The time is still too early for us to adequately weigh the claims of surgical interference, to decide on the kind of case in which surgical interference does the most good, and in which hygienic treatment may be tried. The cases of nephrectomy in early renal tuberculosis are certainly very encouraging as far as I have seen them in reports, and as far as I have known them in cases in this neighborhood. It is certainly true that the disease often attacks one kidney first, and for a considerable time remains confined to that organ, and only after it has really made great progress in that kidney, reaches over to the other. It seems, therefore, as if surgery probably had a very hopeful field in those cases of early tuberculosis in which, by the methods of accurate observation which Dr. Brown has described, the disease is discovered early. I think that the medical side of the subject should have also a great deal of careful observation, and is, perhaps, in danger of being neglected. A medical man sees a case of renal tuberculosis, sends the patient to some health resort, to the Adirondacks or Colorado, or into the country somewhere. He does not afterwards take the interest in that case that a man who had taken out the kidney would. He does not follow such cases with sufficient closeness to give us the real life history of those that are so treated, and yet it is very important that that life history should be known. We constantly see cases in which we feel that the disease has progressed so far as to make the operation of doubtful use. The disease may have already affected the bladder or the prostate in man; there may be doubt as to the other kidney; and to enable us to judge of the proper treatment of those cases, we ought to know exactly how much value there is in hygienic treatment. It is very important, then, that we should report our cases in this sort of way, illustrated by Dr. Brown this evening: the cases that are cured, and the cases that are not, and the cases in which different operations are done, whether they are successful or not. It is only in this way that we can accumulate the statistics on which we can form adequate judgment in this important subject — one of the very important subjects on the border line between medicine and surgery.

Dr. Brown, in one or two of his cases, spoke of the variations in size of the kidney, getting large, and then getting small again and less painful. This is seen not infrequently in connection with tuberculosis. In some cases, no doubt, a diminution in size is due to a tuberculous focus having opened into the pelvis, having obtained sufficient drainage to quiet down the inflammation which accompanied its formation. I think those cases where but one kidney is affected, and that kidney behaves in this way, are just the cases where we are perfectly clear of our diagnosis, and in which the operation has its best field, for such behavior shows the kidney to be very seriously diseased. With such a history, if the other organs have not yet shown evidence of disease, a nephrectomy is distinctly the operation which should be selected.

I think we must not be too dependent upon the demonstration of bacilli in making our diagnosis. As Dr. Brown has shown in his case, a kidney very

[1] See page 513 of the Journal.

decidedly diseased may deliver no bacilli in the urine. We must, therefore, often suspect the disease, even if we cannot prove it by the demonstration of the etiological factor. In such cases we have in the tuberculin test a valuable means of learning the nature of the disease. If the evidence from this test is positive as to the existence of tuberculosis somewhere, and yet leaves one in doubt whether the kidney is the seat of the disease, it is to be remembered that an exploratory incision down to the kidney is not a dangerous procedure, and is quite justifiable in a case of suspected disease, even if not proven.

I should like to ask Dr. Brown about the invagination of the ureter which he described; if he has seen that method used, and if it was a distinctly hopeful procedure. In the few cases where, after removal of the kidney, decided frequency of urination remained, it would be interesting to know if the prostate was absolutely free, and if the mucous membrane of the bladder showed any tuberculous involvement.

The catheterization of the ureter is an extremely valuable procedure, and helps us immensely in many cases. In the female the slight experience I have had with the Harris segregator has made me have a considerable feeling of confidence in that instrument, in giving us very good evidence of the relative condition of the two kidneys. It is easily used in the female, and I have thought that method was a useful one. We can apply it to cases with much less difficulty, and with less discomfort to the patient, than the catheterization of the ureters. I am inclined to reserve catheterization for the cases in which the evidence from the separator has not been very conclusive.

I have been very much interested in the paper, and it seems to me an excellent example of the kind of reports we ought to have from men having many cases, and men having few cases, in order to learn the truth of this matter.

DR. ALFRED WORCESTER: I never was more aware of my ignorance and presumption in attempting any discussion than I am this minute. Those of us who have only a few such cases in a lifetime are not able to report them with anything like the thoroughness shown by the reader tonight in the report of his cases. We do not know enough to report cases in that way, and I do not suppose the general practitioner will ever be able to report his cases of renal tuberculosis in such shape that the surgeon will receive much benefit from his reports. I am, however, exceedingly interested in the general subject of tuberculosis, although I know almost nothing about the special subject of tuberculosis of the kidney. The few cases I have had I have blundered into. The first one where I attempted to do nephrectomy I got scared after having cut down upon the kidney. By the time I had made up my mind it was tuberculous, it came over me that probably the other kidney was also tuberculous, and that I better depend upon permanent drainage. The man with his sinus has for the last few years been earning his living and supporting his family. I do not know whether he would be better had I taken that kidney out.

I never shall be able to catheterize the ureters in the male patient. It is the height of my ambition to be able to do it in the female. It needs a man with special opportunities and tremendous application in that special direction to be able to catheterize the male ureter.

I have been particularly delighted to hear Dr. Brown's mention of the use of tuberculin in establishing the diagnosis of tuberculosis. I remember a few years ago insisting on the reasonableness of that procedure, and I also remember how chilly and terribly still the meeting became. I have employed that measure in cases of suspected tuberculosis, and am perfectly convinced it is a sensible, reasonable thing to do. Any practitioner is able to do that. It sometimes is an immense relief, and especially in eliminating suspected tuberculosis. There is nothing I have ever been able to do in my practice that has given me anything like the satisfaction I have had in giving tuberculin to patients with suspected tuberculosis and after so finding they had not tuberculosis, in seeing their general symptoms improve as soon as they were assured they had not the disease which specialists had told them they probably did have. What I want to bring particularly to the front is the danger of considering tuberculosis merely a local disease. Tuberculosis of a joint, kidney, bladder, lung, is so apt to mislead the practitioner into thinking all he has to deal with is a local lesion, whereas tuberculosis is essentially a general disease, seldom existing solely in one particular part of the body. Instead of there being any predisposition to tuberculosis, I wish we could feel that predisposition to tuberculosis *is* tuberculosis, and that the disease generally begins very early, and at different ages there are different manifestations of it. Just as soon as we get into our heads the idea that in tuberculosis of the larynx, lungs, kidney, bladder, joints or lymphatic glands what we have present is but the local manifestation of a general disease, then we shall come nearer to the desired pulling together of the lung specialist and throat specialist and aurist and genito-urinary specialist and the orthopedist. The poor, distracted family now has to go first to one and then to another specialist, instead of having from the first, as soon as the evidence of tuberculosis was discovered, some general treatment directed to the extirmination of the disease. I am sick and tired of the much-vaunted hygienic treatment of tuberculosis, as if that were all that ought to be provided. Hygienic treatment means nothing more than is necessary in the treatment of any disease,— good food, fresh air and rest and exercise and all that sort of thing. Of course we need hygienic treatment, but we need something more. I am perfectly satisfied that we shall find the proper remedy for tuberculosis in some of the tuberculin derivatives. I have, perhaps, been unduly enthusiastic; but there are some things certainly true about it. Tuberculin is an absolutely reliable diagnostic test of the presence of

tuberculosis. That is a fact, and something that as yet general practitioners do not avail themselves of. We know that the early recognition of tuberculosis is of immense importance, and yet only one general practitioner here and there will avail himself of that certain test. It is equally true that a patient suffering from tuberculosis can be immunized to tuberculin. A patient who reacts to tuberculin at first will not react to the same dose of tuberculin, nor to ten times that dose if treated steadily with slowly increasing doses of tuberculin. Now those of us who have immunized patients in this way believe that we have seen them improve as they would not have improved under merely negative hygienic treatment. I believe that that is the right way of attacking cases of tuberculosis; and all the different sanitariums, all the different hospitals, all the different dispensaries where the hygienic treatment alone is depended upon, are to my mind just wasting time. I still believe that in the wards of the Charité the best work on earth is being done against tuberculosis. There are a good many reasons why the use of tuberculin meets its present disfavor; one of the reasons, however, is unworthy of the profession, and that reason is the ignorance of the profession with regard to the proper use of tuberculin. The profession grabbed at it, used it wrongly, and then condemned it, and has never yet been willing to take up its intelligent use. It is a very different thing to use it properly. The profession used to give ten or even one hundred times the proper dose, and indeed until Prof. Theobald Smith discovered how to standardize tuberculosis, no one could be sure of what dose he was giving. Another reason which has lately been made apparent to the profession why tuberculin should have given such discouragement in its early use, is found in the fact that there are different kinds of tubercle bacilli.

We are again indebted to Professor Smith for this discovery. Until recently, Koch himself thought that the bovine tubercle bacilli were the same as the human tubercle bacilli; but now we are told that there are at least four different varieties of the tubercle bacilli easily distinguishable; and there is considerable doubt whether there was ever a case of human tuberculosis contracted from either milk or beef, for there is such a difference between the bovine tuberculosis and the human tuberculosis as to make it at least very questionable if the disease is ever communicable from man to cattle or from cattle to man; and, moreover, the tuberculin derived from these different varieties of tubercle bacilli is very different in its effect upon the human subject. The tuberculin derived from the bovine tubercle bacilli has a very different effect upon the tuberculous patient from tuberculin derived from cultures of the human tubercle bacilli; so all the early experimentation with tuberculin is in the very foundation at fault, because we did not know with which tuberculin the experiments were made. Now it is possible to obtain tuberculin from the human tubercle bacilli or from the bovine tubercle bacilli, and you can use one or the other, and you can, in using first one and then the other, produce reactions in the human patient quite as distinct and different as smallpox is different from vaccination. Experimentation on animals has proved that a small amount of tubercle bacilli of the bovine form will kill a strong steer, whereas, ten times the dose of human bacilli will hardly hurt a weak calf. Of course we cannot try the counter-experiment of the deadliness of the bacilli of the two varieties on the human patient, but I have not the faintest doubt if we could try that experiment we should find similar results. I can hardly expect surgeons to be interested in such reflections. I am, however, quite unable to understand the apathy of my brother practitioners in medicine; and I cannot help thinking that there never will be a real forward step taken in the treatment of tuberculosis of any special form, renal tuberculosis, for instance, until the profession, as a whole, is willing to stand fairly facing the fact that tuberculosis is never a local disease, but always a general disease; and that the proper treatment of it, while, of course, the surgical evacuation of an abscess is necessary and the curettage of the tuberculous ulcer is necessary, — the real fundamental treatment of tuberculosis is, of necessity, medical now and always.

Dr. Paul Thorndike: It is interesting to come to a meeting of the surgical section and to hear what is commonly considered a surgical topic discussed so largely from the medical aspects of the case. Most of us who have been surgically educated have been brought up in the belief that tuberculosis is a disease for the surgeon to palliate, but not to cure; that the surgeon needs a surgical indication before he interferes. Of late years, with good cystoscopic work, with Dr. Brown's work on ureteral catheterization, with the constantly increasing accuracy and ease for making an early diagnosis, we are constantly confronted with the reports of cases where kidneys have been removed because they were tuberculous, although other surgical indication was often lacking. The diagnosis of the disease resulted in the operation. We make, occasionally, an early diagnosis of tuberculosis of the kidney, and are inevitably confronted with that diagnosis and its possible consequences, as the only indication for operation. That happens to all of us, I am sure. What we want to know is, what is the alternative if we do not operate? What we want to know is, what is tuberculin going to offer us; what is hygienic treatment going to offer us? What can we do for our patient if we do not operate? That is renal tuberculosis today as it looks to me.

Dr. Otis: I have had but trifling experience in renal tuberculosis. My studies in tuberculosis have been in another direction. There are two questions, however, I should like to ask Dr. Brown: (1) Through what channels the tuberculous infection is conveyed to the kidneys; and (2) by what means he thinks climatic treatment

benefits renal tuberculosis — in any special way, or only by the general effect? I suppose in many cases there is coincident pulmonary tuberculosis, and by the beneficial effect of climate upon the latter, the renal tuberculosis is also favorably influenced.

DR. RICHARDSON: I have been very much surprised to hear two things said here tonight: one, that tuberculosis is a constitutional disease, and the other that the surgical treatment of localized tuberculosis is palliative. I have always supposed (1) that tuberculosis in many of its forms, at least, is a purely local disease, its only constitutional manifestation being due to the absorption of toxins; and (2) that the removal of its focus by surgical means will in many forms effect an immediate, complete and permanent cure. I have been very much interested in this paper, especially in the cases. It has always seemed to me extraordinary that tuberculosis of the epididymis, for example, of the urinary tract generally, outside the kidney, is so obstinate — indeed, almost invariably fatal, even after most thorough operation — when the most extensively disseminated miliary tuberculosis of the peritoneum will, after trifling incision, result in permanent cure in at least half the cases; that tuberculosis of the larynx is so obstinate, while removal of a tuberculous gland in the neck ensures, in most cases, immediate and permanent recovery.

I can add but little to this discussion from my own experience. I can add three cases of renal tuberculosis operated upon and one not operated upon. All these cases have followed the usual course of renal tuberculosis, which — like tuberculosis affecting the testicles, the vesiculæ seminales and the bladder — is a very unpromising disease, whether operated on or not. I have never seen the least benefit come from operation. I have removed three kidneys for tuberculosis, as demonstrated by Whitney, Wright and others. No good whatever was done. One patient died as the result of the operation. In another case I was able, after first removing tubercular Fallopian tubes, to palpate both kidneys, and get a very good idea indeed of their outline and condition. I removed the left kidney and the left ureter. The tubercular process extended downward as far as I could go. The patient recovered well from the operation, but died in the course of a few months of pulmonary tuberculosis. A few months ago I removed a kidney, in which case there was ascending tuberculosis of the kidney. The patient had frequent and painful micturition. The operation was in itself very successful, and there was great temporary improvement. I hear now that the frequent micturition which was benefited apparently by the operation has returned, and the patient is now going down hill. I should welcome any means of earlier diagnosis in renal tuberculosis. I believe, with Dr. Cabot, that exploration of the kidney is easy and safe. I have explored a number of kidneys in this way, some by nephrotomy, some by digital exploration previous to nephrectomy, and I have been much impressed by the facility, safety and efficacy of the procedure.

DR. ELLIOT: I have here a drawing of an early case of tuberculosis of the kidney which I will show, as it serves the purpose of what I am about to speak of. This case was of a girl nineteen years old, and the operation was done six months after the first symptoms. (The water-colored drawing showed a kidney in the early stages of tuberculosis.) We surgeons have to come down in our present knowledge from the constitutional treatment which *should* cure the patient to taking care of a degenerating localized lesion, of an abscess cavity. When you look at that drawing and see not one cavity only, but other centers, little cheesy patches breaking down, it seems to me very improbable that either the tuberculin or any other treatment will relieve surgeons of attacking the tuberculous kidney. I think this subject is a very important part of surgery, and Dr. Brown has given us the very latest and most advanced ideas on the subject. I have profited much from what he said, and am delighted to have been present. I believe that exploratory incisions will be made less frequently in the future. As these methods Dr. Brown is practicing become more generally understood and more generally practiced the necessity for exploratory incisions will be less, although probably not wholly done away with. Dr. Brown has spoken of the value of catheterizing the ureters, and I have no doubt it is great. He also showed us a specimen which clearly shows that in that particular case catheterization of the ureters alone would have led to a wrong supposition of the state of affairs. I have recently had a case in which it was very difficult and very puzzling to know what to do on account of the result of the catheterization of the ureters. Both ureters were catheterized, and there was pus in both urines and tubercle bacilli in both urines; the animal inoculation was positive from both kidneys. That result put me off from doing nephrectomy. The patient was treated hygienically and improved so much, looked so well, that it seemed wise to take out the kidney, which was evidently enlarged. A nephrectomy was done with a very good result, and the other kidney has worked very well since the operation. We may meet either of the two following conditions: You may find from your catheterization tubercle bacilli in both kidneys. You then have to decide if your patient will be benefited by removing the kidney most diseased. You may not get the bacilli in the early stages of the disease, because the tuberculosis does not begin in the pelvis of the kidney, it begins in the substance of the kidney, and the abscess may not have broken through; considering both these situations, it seems to me we are in danger of overvaluing the results of catheterization of the ureter. For after all, it usually comes down to the fact that if you have an enlarged kidney on one side, with pus in the urine and tubercle bacilli, that kidney is probably the origin of the disease. If the other kidney cannot be felt, and if you make a cystoscopic examination and find the ure-

ter of that side puffy and with a little ulceration about it, the evidence becomes overwhelming without catheterization of the ureters. I myself believe, in spite of all the enthusiasts say, that it is not a good procedure to catheterize the ureters of a patient about to have nephrectomy done. I believe, from what we know about the difficulties we have following manipulations of the genito-urinary tract, that catheterizing the ureters should not be done without a very good reason for it, not be done unless something hinges on it, certainly not done for curiosity. It seems to me the practical value we are going to get out of it is beginning to narrow itself down. I do not mean to say it is not invaluable in a good many cases, but I do say it ought not to be done simply as routine.

Dr. Munro: With Dr. Brown's deductions I am heartily in accord. I would like to emphasize, however, the climatological side, because I think it is important. A number of years ago I corresponded with all the members of the Climatological Association, and since then I have talked with a good share of them on the subject of their clinical experience in the treatment of genito-urinary tuberculosis climatologically. My deductions have been stronger and stronger every year that those men see most excellent, most complete, results in the treatment of genito-urinary tuberculosis climatologically. I absolutely dissent from Dr. Worcester's statement that climatological treatment is primitive and an old-fashioned method. I believe it is the most important form of treatment we have outside of surgical treatment where surgical treatment is applicable. There is one other thing that ought to be emphasized, and that is, that climatological treatment does not mean simply sending a patient at random out West or to some health climate for one or two or six months, but to a well-selected climate and to a physician who understands the treatment of tuberculosis from the beginning and follows up the patient day after day and week after week throughout his entire treatment; who regulates his rising in the morning, his going to bed, diet, exercise, everything, and has as complete control over him as over his cases of pulmonary tuberculosis. Furthermore, cases that go for climatic treatment ought not to come back in one or two months. They should go for a year or five years or more if necessary, and should never come back to an unhealthy climate until the physician in charge is absolutely satisfied that they can come back tentatively for a summer and then perhaps for a summer and winter, etc. I believe that is the part of the treatment in which we are more apt to make mistakes; namely, the proper and thorough and really scientific treatment of these genito-urinary cases by climatic methods.

Dr. Craig: I have the permission of Dr. Baker to report a case of his very recently operated upon, and whose life history as regarding the tuberculosis is just at its beginning. The patient, a girl of sixteen, was referred to him by a suburban physician about nine months ago, with a very intractable cystitis. Cystoscopic examination showed an open ulcer just within the bladder, near the urethra; and after local treatment failing entirely, the bladder was opened through the vagina, and the area, including the ulcer, was excised and a vesicovaginal opening was left, and through that opening the bladder was treated regularly, with the result that all bladder complication, so far as any objective signs went, was cleared up. She had no pain, never manifested lumbar pain. She had not gained beyond a certain point, and on certain nights, showing no particular regularity, there was an evening temperature. She returned to the hospital and the ureters were catheterized, as renal tuberculosis was feared. The urine from the left kidney proved negative. The urine from the right kidney showed pus and bacilli. Two weeks ago the kidney was removed. The ureter was removed down to the bladder, by making a series of incisions through the peritoneum and over the course of the ureter, the ureter being drawn under the peritoneum, and it was removed down to the bladder and was there cut off. In regard to the removal of the ureter, I have not heard Dr. Brown's answer to Dr. Cabot's question as to whether he has tried the inversion of the ureter, but I cannot conceive of the inversion of this ureter having been possible, because the upper end of the ureter was not particularly sacculated, but extremely thick and cord-like and very rigid; whereas, as we approached the bladder, got below where the ureter crossed the vessels, the ureter became practically its normal size; and it would have seemed to me to have been impossible to have invaginated the thickened portion by any means into the normal part and turned it out through the bladder. The patient is sitting up today for the first time.

Dr. Watson: I am entirely in accord with what Dr. Cabot and Dr. Munro have said as to the desirability of a conservative judgment with regard to the operative treatment of renal tuberculosis. The testimony with respect to the results of non-operative treatment offered by physicians is meagre, because of the difficulty of following the cases for sufficient periods to allow of a sound judgment. Moreover, if I may judge from my personal experience, it is safe to say that the majority of medical men — a large majority — do not know what is meant by early recognition, and properly carried out conservative treatment, in the sense of hygiene, climate, diet, etc. So far as I have had the opportunity to note its results, I have received the same impression as Dr. Munro; that they are much more favorable than we as surgeons are inclined to believe; and while in no wise wishing to minimize the successes of surgical intervention, I think the conservative views expressed here are well taken and timely. I cannot agree with what Dr. Cabot said as to the value of a lumbar exploratory operation in cases in which the diagnosis is obscure, for mere palpation and inspection of the kidney will very rarely give us information that we cannot better obtain by the cystoscope, and ureteral catheterization

used in connection with it after the method employed by our guest, Dr. Brown.

It does not seem to me that Dr. Elliot's assertion is justified, in which he maintained that it was useless to look for any benefit from means other than surgical in such a case as that which he described, for we know that tuberculous lesions which are of equal or greater extent elsewhere in the body are capable of arrest under non-surgical treatment, and it is too much to assume that the same may not be true of the renal lesion which he referred to.

Two statements made by Dr. Worcester should, I think, be modified somewhat. They are: "That tuberculin treatment was not employed in sanitariums," and "That tuberculin as a diagnostic test is infallible." At the Adirondack Sanitarium of Dr. Trudeau, treatment of selected cases — afebrile and well-nourished patients — by modified tuberculin is employed systematically in a number of cases — in the last annual report there were 19. With regard to the diagnostic infallibility of the tuberculin test, we know that several diseases other than tuberculosis may give the same reaction that is supposed to be characteristic of the latter malady, and also that there are instances of tuberculosis in which the test is not followed by the reaction. Yet one cannot but cherish the hope that by means of tuberculin, in one or another of its modifications or varieties, there will yet be found a specific remedy for this most widespread of all the diseases that we know in our part of the world, the step to actual discovery seems to be but so little removed and the results of the study already are so very suggestive of the possibility of success.

The paper of Dr. Brown to which we have listened furnishes another example of thorough, well-considered bits of work for which he has been conspicuous in this and other fields of surgery, and is a vindication — if one be needed — of the specialist, to whom alone we are indebted for such advance in our knowledge and the ability to practically apply it. I wish to express the thanks of the society to Dr. Brown for his kindness in coming here, and for the valuable and interesting paper to which we have had the pleasure of listening.

DR. F. TILDEN BROWN: As to the management of the ureter brought up by Dr. Cabot and referred to by several other members. It is my idea in nephrectomy to remove as much of the ureter with the kidney as the particular wound will permit of, whether the ureter is at fault or not; if we can appreciate — we usually can — by the finger that the ureter is diseased, we will extend the incision downward and secure as much ureter attached to the kidney as possible. It has been my idea, and I am not ready to give it up, that the diseased ureter left goes into a kind of functionless decline, and that it is no longer so much of a menace in spreading disease to the bladder, and also probably less of a menace in disseminating disease by the blood to other parts. However, all of the diseased ureter which is available should be taken out at the same time that the kidney is removed.

As to the disease being limited to the upper part of the ureter, I am not prepared to say. My limited experience rather supports that view. Where cases show a marked hyperemia or even ulceration at the ureteral mouth in the bladder, I am not prepared to believe that it indicates a continuous tuberculous ureter from the kidney down to that point. I have an idea that there may be a great deal of intervening ureter in a practically normal condition.

As to the passage of the ureteral catheter with chromic gut in it before operation, with the hope of fixing the upper end of the ureter for invagination, it is unnecessary to say that there is no reason to think that this would be available in a great number of the cases for getting rid of the ureter. There are, however, some cases where we may infer from previous ureteral catheterization that this canal is unusually patulous, and in which it would be roomy enough to permit of invagination. In one case, the picture of which I pass, where the kidney was removed with seven inches of ureter attached, I think the remainder could have been managed in this way; for, although lined with tubercles and dilated, it was perfectly flaccid and soft. I have only suggested the process as a possible means, in some cases, of saving what seems a tremendous wound for a somewhat questionable end.

As to the persistence of frequency in two of our cases of nephrectomy, Dr. Cabot asked about involvement of the prostate. One of these patients was a woman. In the case of the man I cannot answer the question. These curtailed notes contain nothing as to his prostate; but as I recall it, he had no such involvement.

Dr. Worcester's intimation that catheterization of the ureters in the male is a difficult procedure, I would say that in the majority of cases it is not, when done with a systematic degree of patience. Of course, everything must be right at hand, and all the details must be prearranged; but, as far as the difficulty of introducing the catheter into the mouth of the ureter, it is generally simple, and it is a procedure that will be used more and more. At this moment I might skip a little, and in reply to Dr. Elliot's strictures upon the process, say that we agree with him that it is not a matter of overwhelming importance; but it is only one additional way of getting good evidence as to existing disease in one or the other kidney. So far as its being injurious, I have yet to see proof. It certainly is not to my mind as rough a procedure as the employment of a searcher in patients with symptoms of stone or enlarged prostate. The reaction following such examinations is often greater, and perhaps more dangerous, than the careful use of the cystoscope, and the introduction of ureter catheters, which, unless there is some reason for it, I never pass more than two and a half inches. I would say, while on this subject, that if we accomplish anything surgically in renal tuberculosis, it seems that it must be done during the

early stages of the disease. If we wait until the striking subjective and objective symptoms occur, we are very apt to have waited until the disease has passed pretty well into the ureter, the bladder, or posterior urethra. It does not appear to be advancing the subject to belittle any of the methods of getting at an early diagnosis, even if such a method is not always successful; and we certainly do not claim that it is so.

As to Dr. Worcester's theory, that tuberculosis is a general disease, I am quite in accord with what several of the speakers have said on this subject. I am much pleased by Dr. Worcester's statement, that he sees, from what tuberculin has shown in the past, hope that it will yet assume a form for successful treatment of the disease.

I was asked through what channel I thought tuberculosis disseminated. We all recognize the blood as one medium. I think this is the most common way by which the kidney becomes implicated originally. Of course, when the disease is far advanced, very commonly the other kidney is reached by a descending tuberculosis, in lymphatic continuity to the bladder, and up to the other kidney, as is seen in this illustration, although there is no reason why the second kidney should not receive a subsequent infection through the blood, just as the first one did some time previously. Again, superficial implantation by the descending bacilli must at times occur.

In what way is climatic influence supposed to be beneficial? This, I am not ready to answer, other than that it is due to a general systemic invigoration. We all know that some tuberculous patients will be greatly benefited by visiting a new place, and a while later they may begin to decline; then going to some different climate again, get a temporary brace, until that, in turn, ceases to benefit. With each move there is a noticeable gain, but if their whole record is reviewed for some years, it may show a decidedly total decline. Such are the cases that are marked for a fatal termination.

I was very much interested in the beautifully illustrated case of nephrectomy, reported by Dr. Elliot, of early renal tuberculosis, and think, from the picture, that it was just the kind in which a happy issue is to be expected from surgery, if from anything.

How much value to attach to the inoculation of animals; that is, how much value has a negative injection of urine, in which tubercle bacilli were believed to have been found? If it were voluntarily passed urine, I should be pretty positive that the bacilli were not tubercle bacilli. If, on the other hand, the bacilli seen by microscope had been collected by the ureter catheter directly from one kidney, I should be quite as positive that they were tubercle bacilli, and that, for some reason, the guinea pigs had not responded to this particular kind; because, although I have seen it stated by several authors, I am not prepared to believe that the smegma bacillus can be derived from the field of a pyelitis. If these authors mean that cases of tuberculous pyelitis are more apt than healthy persons to have conditions about the glans, penis, or about the vulva, favorable for the excessive growth of smegma bacilli, that is another thing.

The Harris segregator I do not like to say much about, because I have not used it much. Of course, one is apt to favor what one uses most. In the Harris segregator one is certainly deprived of the great value which attaches to a visual inspection of the bladder. With the ureter cystoscope you can see the vesical conditions, and those existing around the ureteral openings, and see your catheter go into the ureter; and then, after collecting the renal excretions, see that the catheter comes out of the ureter, so make doubly sure that it has been where you supposed. I don't think there is much question that the ureter cystoscope invites a lesser traumatism than the Harris instrument. I do not use the Kelly method. My cystoscope is on the order of the old, original Brenner cystoscope. It has two barrels below the ocular apparatus. I have had so much satisfaction in the use of this double-barrel cystoscope, I am having another made with three channels, so that when a catheter is in each ureter, the third channel can be utilized in some cases to wash out the bladder, in order to get a specimen for examination; and in all cases, to let off the distending fluid when the catheters are in place.

The ureter catheters I generally use are known as Kelly's, and sold by Kuy-Scheover Co. They are short, and so flexible, that the mouth of the ureter is not put to any tension when the cystoscope is turned towards the other ureter to pass the second catheter; whereas, the European catheters are so stiff, that they would involve a considerable leverage on the ureter in doing this.

ASSOCIATION OF AMERICAN PHYSICIANS.

Abstract Report of the Sixteenth Annual Meeting, Held at Washington, D. C., April 30, May 1 and 2, 1901.

FIRST DAY.

The meeting was called to order by the president, Dr. Wm. H. Welch, at 11 o'clock.

In his opening address he said that, as this was the first meeting of the association in the present century, he felt tempted to review of the past and to forecast that of the future, but the limited time at his disposal precluded the possibility of entering upon such a broad field. He devoted a short time to a consideration of the opportunities at present afforded in this country to those who take up one of the medical sciences as their life work, such as anatomy, physiology or pathology, as compared to the opportunities open to those who desire to fit themselves for the higher positions in clinical medicine or surgery. He thought that we now possess in this country, while far from enough, still, a fair number of well-equipped laboratories representative of each of the fundamental medical sciences in which the training compares favorably with that to be found anywhere in the

world. Laboratory training has in a few years advanced from the weakest to the strongest point in our curriculum. The young man who chooses for his career one of the scientific subjects can find plenty of opportunity in this country for study, and after he wins his spurs can look forward to securing a teaching position or the directorship of a laboratory within a reasonable time, which is a gratifying advance over former conditions; but corresponding opportunities are not offered to those who take up clinical medicine and surgery. The only path open to them is through family practice or dispensary work, and while the desired end may be reached, Dr. Welch thought it was not a method adapted to securing the best results. The contrast was shown in considering two particular points, namely, that there is not the same opportunity for prolonged training under competent supervision; and secondly, that there is little chance that the man who has acquired a high reputation in one place will be called to another while the present organization of schools and hospitals continues to prevail.

In considering the question of the present membership of the association and the fact that it has about reached the limit, Dr. Welch recalled and endorsed the suggestion once made by Dr. Da Costa that a free use of the honorary membership should be made so as to transfer to that list some of those who are now on the active list, but who are prevented for some reason attending the meetings regularly and contributing to the scientific work of the society. Dr. Welch then paid fitting tributes of respect and loving memory to those members who had died within the year, a list which includes the names of Drs. Whittaker, Da Costa, Busey and Draper, all founders of the association and three former presidents.

DR. H. A. HARE, of Philadelphia, read a paper entitled

AN UNDESCRIBED CARDIAC SOUND.

He said it seemed impossible that any heart sound had gone undescribed, and yet he could find no reference in the literature to the one he was about to speak of. It consisted of "a peculiar vibrating sound occurring with the systole, and heard best in the area extending from one inch to the right of the sternum to one inch to the left of the nipple, on the nipple level, and which is sometimes so dry, if I may use such a term, that I have at times considered it somewhat like the pericardial friction sound heard in pericarditis near the base." He was convinced that it was not a friction sound and believed it to be due to the vibrations in the cordæ tendonæ produced by imperfect contraction of their muscular attachments, as he had never met with it except in cases of general debility with feeble, irritable heart. He had found it frequently in early cases of pulmonary tuberculosis and also in the general systemic and cardiac feebleness of influenza convalescence. He compared it with the sounds that this description might suggest, and determined that it was not like any of the known, described sounds.

DR. OSLER said that he did not know that he had ever heard the sound Dr. Hare referred to, unless it was one of those peculiar heart sounds that had sometimes both worried and puzzled him.

DR. W. S. THAYER, of Baltimore, described the

FREQUENCY AND THE DIAGNOSIS OF THE FLINT MURMUR IN AORTIC INSUFFICIENCY.

"In 1862 Flint called attention to the occasional occurrence in uncomplicated aortic insufficiency of a presystolic murmur limited to the region of the cardiac apex; the sound was loud and blubbering, and had all the characteristics of a mitral presystolic murmur. His explanation was, that in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta as well as from the auricle before the auricular contraction takes place. The distension of the ventricle is such that the mitral curtains are brought into coaptation, and when the auricular contraction takes place the mitral direct current passing between the curtains throws them into vibration and produces the murmur." It appears that the majority who have recognized the Flint murmur have agreed in considering it of unusual occurrence, Guiteras alone expressing the belief that "Obstructive functional mitral murmurs are of frequent occurrence in aortic regurgitation."

In view of this and of the fact that he had seen a good many cases with Flint murmur in the Hopkins Hospital, Dr. Thayer thought it advisable to analyze the clinical and pathological records of all cases of aortic insufficiency that had come to autopsy in order to reach some conclusion in regard to the frequency of the murmur and its diagnostic features. In 74 cases that have come to autopsy since May, 1889, the records show in 45 a murmur exactly similar to that characteristic of mitral stenosis, at some time during the observation of the case. In 12 of these there existed a mitral stenosis in connection with an aortic lesion. In 33 cases in which the Flint murmur was observed, the condition of the mitral valve, beyond the dilation of the orifice usual, as a rule, in well marked aortic insufficiencies, was absolutely normal in 17 instances; that is, the majority of the uncomplicated cases of aortic insufficiency showed a Flint murmur.

As to the character of the diagnostic features, certain clinical differences were found between the Flint murmur cases and those complicated with mitral stenosis. The Flint murmur is never as rasping and intense as that in stenosis; the presystolic thrill is less frequent, less intense, and in but few instances does the apex impulse have the tapping character so significant of true mitral stenosis; the snapping valvular first sound is also rare; the absence of history of acute infectious processes is also of assistance in making the distinction.

DR. CABOT said that a review of the post-mortem records at the Massachusetts Hospital had confirmed in detail practically all that Dr. Thayer had said. In the last 100 cases of aortic regurgi-

tation, which he had examined in the same way that Dr. Thayer did, he had found the Flint murmur in something over 50 of them.

Dr. Alfred Stengel, of Philadelphia, read a paper on

THE CAUSES AND CLINICAL FEATURES OF CARDIAC HYDROTHORAX.

He referred to the cases of unilateral pleural dropsy reported by Steele, which he had observed with the latter, and called attention to the fact that most writers have stated that effusion in heart disease is always bilateral. He had frequently found it unilateral, and when single it was always right sided. He analyzed 100 consecutive cases of cardiac disease that had been under his observation, and in which sufficient clinical and pathological information was preserved to make the notes valuable. Of these 17 showed evidences of hydrothorax, of which 5 were right sided only, 3 left sided, but in 2 of these the right pleura was found at autopsy obliterated. Nine had bilateral effusion at some stage; 2 of these were first right sided and then double, and in the other 7 the right side was more affected than the left. He said it was sometimes difficult to determine whether an effusion was dropsical or inflammatory, but the former could occur unilaterally.

He considered at some length the anatomical conditions that might permit or cause a one-sided effusion through obstruction to the circulation, and found support for the clinical evidence that the chances for such an effusion to occur are better on the right than on the left side.

Dr. Osler thought the history of these cases pointed to a local cause, and said that the three interesting points about all of them were: (1) The extraordinary chronicity of the cases; (2) the sudden onset of the hydrothorax; and (3) the almost invariable fact that these cases are mitral and the right side is chiefly involved.

Dr. Wilson thought that the mechanical conditions should be taken into consideration in explaining the disparity in the amount of fluid on the two sides. Referring to the two pleural cavities as closed sacs, and the right one being occupied by compressible lung tissue, he found the left to contain such tissue, but to be occupied also to a large extent by an enlarged incompressible heart, which would prevent the rapid transudation of fluid on that side.

Dr. Hare considered the movements of the heart to be another important factor, and believed it possible that the diastole and systole of the heart might urge on the fluids on that side without influencing the other.

Dr. A. Jacobi, of New York, presented a paper entitled

(To be continued.)

Plague in South Africa.—The total number of plague cases reported up to May 28 has been 651, and the deaths from the disease 300. Rats at Port Elizabeth are still said to be dying of plague. The conditions on the whole, however, are improving.

THE BOSTON

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SOME RELATIONS OF MEDICINE AND SURGERY.

There is little reason to doubt that what we now broadly speak of as medicine and surgery will, as time goes on, show an increasing tendency to invade each other's domain. In fact, apart from mere operative technique, very many surgical problems are primarily medical, and certainly many medical problems become surgical as the underlying disease progresses. The generally recognized separation of medicine and surgery depends finally upon the comparatively superficial basis of operative skill, the whole field of diagnosis occupying a common ground. However keen the surgeon's desire may be to accomplish definite results through operative means, the fact remains that by far the larger portion of his professional work is taken up with a consideration of the primarily important matter of diagnosis, of the determination of the advisability of operation — a strictly medical matter. The ease with which operations may now be performed has in the past and will, no doubt, in the future, lead, on the part of certain men, to a lack of discrimination in determining as exactly possible the underlying condition for which the operation is undertaken. We still hear much, though possibly less than formerly, of exploratory operations, justified unquestionably in certain cases, but bad in principle, if there is the slightest opportunity of determining pre-existent conditions. What we look for now in the really successful surgeon is discrimination, another word for conservatism, and fortunately this tendency is everywhere visible. With modern methods, courage more often lies in refraining from operation than in operating. In general, we see about us a growth of the tendency to look more broadly and deeply at medical matters, to use our reasons more and our impulses less; and this applies peculiarly to sur-

gical procedures. The medical side of surgery, diagnosis, pathological anatomy and the causes of disease, are coming to occupy their proper place. This clearly is a necessity if surgery is to keep pace with the scientific tendencies of medical knowledge in general.

As a type of the failure to clearly recognize the interrelation of medical diagnosis and surgical interference, there is probably no better example than operations on the spine for traumatic injuries of the cord. In this matter, on the part of certain writers, there is a persistent disregard of the palpable fact that the question at issue is almost invariably a medical one, and only secondarily surgical. The essential matter to determine is, how much the cord is injured, rather than whether or not laminectomy may be safely undertaken. And yet we see, from time to time, papers appearing with reports of cases in which no discussion of the medical side of the question is made, or of the pathological anatomy of the condition, or of the possibility of improvement without operation. For example: At the recent meeting of the American Surgical Association, Dr. Stephen H. Weeks read a paper on "Fractures and Dislocations of the Spine," in the course of which he said: "I believe the surgeon should perform laminectomy in every case, if the condition of the patient is such as to justify any operation, regarding the operation in the first instance as an exploratory one." Following this are various details regarding the dangers of the operation, and a warning that every precaution must be taken to avoid the attending shock. Unlike others, Dr. Weeks admits the gravity of the operation in itself, and yet without further statements regarding the medical side of the question, advises an exploratory operation in all cases, provided the condition of the patient is such as to justify any interference. What we object to, is the lack of discrimination, arising, we are forced to believe, from a too strictly operative point of view. Nothing is more firmly established than that a crushed or injured cord does not recover. If operation is to be attempted at all, it should only be after a most careful study of the symptoms of each individual case, remembering, too, that many cases reported as improved after operation might have improved without interference.

The only point, however, which we wish to make here, is that general statements regarding serious operations are out of place, and not in accord with the spirit of modern surgery, unless accompanied by the medical bearings of the subject under discussion. Laminectomy, as a procedure in operative surgery, is no doubt indicated in a limited number of cases, but even then its justification depends wholly upon other considerations than comparative operative safety. In general, it is certainly safe to say, as we implied at the outset, that the surgeon of the future must devote an increasing share of attention to the conditions which underlie surgical complications. By this means, no doubt, some of the artificial barriers between two subjects, which are in reality one, may in time be broken down, to the decided advantage of medicine at large.

A HOSPITAL CORPS GRADUATION AT MANILA.

A RECENT graduation of nineteen men of the so-called Company of Instruction from one of the Reserve Hospitals at Manila was made an occasion of considerable dignity by the presence of the commanding general and chief surgeon of the division. The object of the affair was to lay more stress upon the importance of this arm of the service than is ordinarily done. Various men, prominent in the army, spoke, describing the work of the Hospital Corps, and its possibilities for the future. General McArthur addressed the graduating class, and presented each member with his diploma. Colonel Greenleaf gave an interesting sketch of the development of the Hospital Corps from the Civil War down to the present. The remarks of the valedictorian of the class, Homer C. Lawson, were received with much enthusiam. Among other things he said: "In no department of the United States Army is there as much responsibility resting upon an individual as there is upon the soldier of the Hospital Corps. Upon his prompt action and coolness in danger often depend the lives of his comrades. How many soldiers, wounded in battle and far from medical assistance, are saved by first aid treatment? And in the time of trying need, when a whole army may be threatened by the invasion of disease, how often is the danger averted by the timely and discreet action of the sanitary soldier. In the very beginning, I wish to emphasize and impress the fact that above all things a Corps man is a soldier. What constitutes a soldier in the true sense of the term? All honor to our comrades behind the gun, but it does not necessarily follow that he alone is a soldier, or that bravery and loyalty cannot be shown in an equally effectual though different manner. We wish to prove that a trained Corps man is of equal value with his brother of the line in battle, in camp or in garrison. In the field a Corps man faces every danger that is encountered and risks his life equally as often as the man behind the gun."

These are simple enough facts, told in a simple way, and we hope that their reiteration will do something toward the better recognition of the

medical service in all its departments. In general, it must be taken as a good sign that these graduating exercises were given an importance usually not accorded to them, due mainly to the efforts of the commanding officers, Major Kulp and Lieutenant Lyster.

BOSTON'S ICE.

It is unfortunate for our complete peace of mind that, year by year, new menaces to health arise. A recent addition to the list is the quality of the water supplies from which our ice is obtained. It is self-evident that the sources of contamination increase in proportion to the growth of population in the neighborhood of ponds from which ice is cut. Not long since, Alderman Norris, of the city government, advocated the appointment of a chemist to investigate the ice sold in Boston, with relation to impurities of various sorts inimical to health. It appears that about a year ago Dr. Hill of the Bacteriological Laboratory, at the instigation of the Board of Health, studied the whole subject, as a result of which certain regulations were adopted, which dealers in ice were expected to obey. Were these regulations carried out, which demanded exact information from the dealers regarding the source, character and means of transportation of their ice, there is small reason to fear the origin or spread of disease from this cause, inasmuch as it is perfectly well known to the Board of Health that certain ponds, through proximity to sources of pollution, are unsafe. It is also clear that with the still greater growth of the city and its environs, the disposal of sewage will be more adequately provided for, thereby decreasing materially what now in certain instances might be a positive source of danger.

MEDICAL NOTES.

An Example of Newspaper Surgery.— The following paragraph, reported apparently in good faith by a daily contemporary, is not likely to spread accurate medical knowledge, however much it may redound to the credit of surgery in the popular mind. "Perry Taylor is one of the few human beings from whom doctors have successfully removed an entire lung. The patient, who is twenty-six years of age, was stricken about four years ago with what he believed was galloping consumption and was treated accordingly by the physicians consulted. Fully 240 cysts were removed in one operation, and then it was decided that the whole lung would have to come out. The operation was successfully performed. Taylor seems to have recovered his strength and is in the best of spirits."

Death of Marie J. Mergler, M.D.— The death of Dr. Marie J. Mergler, of Chicago, is announced from California, where she had gone for her health. She was one of Chicago's most prominent women physicians and held during her life many positions of trust and responsibility connected with her profession.

Testimonial to G. Armauer Hansen.— It is proposed to honor Dr. G. Armauer Hansen, of Bergen, distinguished for his services in the scientific study of leprosy, by a bust, for which contributions are sought from various countries. Subscriptions ranging from $2.50 to $5.00 may be sent to Dr. Sandberg, Bergen, Norway.

Diphtheria Not Subject to Quarantine.— The steamer "Rhynland," which arrived at Philadelphia May 12th with three cases of diphtheria on board, was, according to the *Medical News*, passed by both Federal and State quarantines. A list of the passengers who were to stop in Philadelphia was furnished the Board of Health, and the three persons afflicted were removed to the municipal hospital.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 28, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 77, scarlatina 24, measles 204, typhoid fever 8, smallpox 4.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending May 25th was 213, as against 200 the corresponding week last year, showing an increase of 13 deaths, and making the death rate for the week 19.8. The deaths from consumption were 24, pneumonia 18, whooping cough 1, heart disease 15, bronchitis 10, marasmus 4. There were 12 deaths from violent causes. The number of children who died under one year was 36, under five years 54, persons more than sixty years 50; deaths in public institutions, 53.

Hospital not Liable for Alleged Injury to Patient.— The United States Circuit Court of Appeals has affirmed the judgment of the Circuit Court which was for the defendant in the case of a patient against the Massachusetts Homeopathic Hospital. This was a suit brought to recover damages for an injury alleged to have been sustained by the negligence of a nurse in the hospital in the use of a hot-water bottle. The plaintiff was at the time paying for her care, a fact which her counsel attempted to make use of. The court ruled: "Commonly, and in the case at bar quite manifestly, this payment does not make full pecuniary compensation for the services rendered.

The pay is generally calculated upon the patient's ability to pay rather than upon the whole cost of the treatment he receives. That such a hospital in its treatment of a rich patient shall be held to a greater degree of care than in its treatment of a pauper is not to be tolerated."

SMALLPOX AT MARLBORO AND DEDHAM, MASS.— The first case of smallpox for eight years in the town of Marlboro has recently been reported to the Board of Health. It is reported that a case of smallpox has appeared in Dedham, Mass., said to be the first for fifty years. The patient is a young woman who had been employed in Boston.

NEW YORK.

CONVICTION OF A FOLLOWER OF DOWIE.— J. Luther Pierson, a resident of Valhalla, a nearby village, has been convicted in the Westchester County Court, at White Plains, of violation of Section 288 of the Penal Code in neglecting to provide medical attendance for a child, two years old, which died recently from pneumonia. The offense is characterized in the law as a misdemeanor, and the sentence of the court was that he should pay a fine of $500, and, failing to do this, to stand committed to the county jail for one day for each dollar of the fine. Pierson, who is a member of the "Christian Catholic Church, of Chicago" (or follower of Dowie), stated during the trial that while he admitted the existence of disease, he believed that it came from the devil, and could be cured only by prayer and faith, without the use of material agencies.

LIBRARY OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, NEW YORK.— The Library of the Medical Society of the County of Kings was founded in 1845. On May 19, 1900, the library of over 30,000 volumes, 15,000 pamphlets, and some 500 current medical periodicals was thrown open free to the public. In addition to the very latest publications, the collection is especially rich in classics. The earliest printed volume is a folio published A.D. 1474. The first donation to the permanent invested endowment was the "Dr. John Lloyd Zabriskie Memorial Library Fund," presented in 1899 by Mrs. Zabriskie as a memorial of her husband, the late Dr. John Lloyd Zabriskie.

CARELESSNESS IN GUARDING AGAINST SPREAD OF SMALLPOX.— Recently a trained nurse who was taken ill, after having been in attendance on a patient who proved to have smallpox, was admitted to Harlem Hospital, and, with an extraordinary lack of precaution, was placed in a ward with sixteen other patients. When she herself developed the disease there was consternation in the institution. The patient was removed to the Willard Parker Hospital, the ward was placed in quarantine, and the Medical Board ordered the vacinnation, for the seventh time during the present season, of the entire medical and nursing staff of the hospital.

Miscellany.

THE ADIRONDACK COTTAGE SANITARIUM.

IN the sixteenth annual report of the Adirondack Cottage Sanitarium, for the year 1900, the president and physician in charge, Dr. E. L. Trudeau, states that the accommodations at the infirmary, which has only six beds, are now at times entirely inadequate, and a new and larger infirmary building is greatly needed for the proper care of the more acutely ill patients. The rapidly growing recognition by the public and the profession, of the value of sanitarium methods wherever they have been adopted, is shown by the fact that applications for admission to the institution from Massachusetts — the first and as yet the only State in which a State Sanitarium for Consumptives exists — have more than doubled since the adoption of this method of treatment there under State control. The number of patients admitted from the different States during the past year was as follows: New York, 136; Massachusetts, 22; New Jersey, 18; Canada, 18; Maryland, 14; Connecticut, 9; Ohio, 8; Pennsylvania, 8; Vermont, 5; Virginia, 5; District of Columbia, 4; Rhode Island, 4; Maine, 3; Michigan, 2, Missouri, 1; Illinois, 1; Iowa, 1; Kentucky, 1; England, 1; Germany, 1.

The work done by the sanitarium during the past year may, therefore, be summed up briefly as follows: 262 patients have been treated. To 224 of these the institution has furnished the best possible means of restoration to health at a nominal price, and to 38 entirely free of cost to them.

Correspondence.

SALSOMAGGIORE (PARMA).

GRAND HOTEL DES THERMES,
May 14, 1901.

MR. EDITOR: — Italy has numerous spas of various kinds, but lack of enterprise has thus far prevented their merits becoming known to medical men of other nationalities. The best of them, so far as the natural properties of its waters are concerned, is Salsomaggiore, a little place of 1,500 inhabitants in the Province of Parma. It is a quaint and rather picturesque village, connected by a steam tramway with Borgo San Domino, which is a station on the main line between Rome and Milan (via Florence); so that there is nothing left to desire in the way of accessibility. It can be easily reached in thirty hours from either London or Paris, and for Americans who land at Genoa it is no more than a half day's easy journey.

For many centuries the waters have been used for the manufacture of salt, and it was not until 1839 that Berzieri, the village doctor, tested their effects in cases of syphilis and scrofula. His successor continued these researches and went so far as to build a couple of baths in his own house for the treatment of his patients.

From these small beginnings have sprung into existence three large and well-installed *stabilimenti*, each with its own well driven to a depth varying from 400 to 700 mètres. The waters are used in every possible way for the treatment of all diseases where resolution and absorption are the potent factors in obtaining a cure; immersion, inhalation, douches, and every conceivable form of outward and inward use aside from drinking, for which the water is unsuitable, as shown by the analysis, which proves each kilogramme to contain the following number of grammes: Sodium, 153.990; lithium, .735; ammonium, .637; calcium, 15.848; strontium, .255; magnesium, 5.584; iron, .033; aluminum, .059; manganese, .005; magnesium bromide, .303; magnesium iodide, .006; magnesium borat, .011; ferrum bicarbonate, .077; strontium sulphate, .603. The natural temperature is 14° C. (57°+F.) and the density 15°—16° Baumé. The water, as discharged in intermittent jets from the wells, is clear, but quickly turns brown from oxidation, and leaves a deposit on the sides of the tanks and pipes. Before it is allowed to reach the enormous receptacles used for its storage, it undergoes a straining process, and the mud thus extracted is employed in the way of ordinary "fango" baths. It differs, however, in color from the usual "fango" so much used at Dax and throughout Germany, and is strongly impregnated with the salts which the water contains. After reaching the tanks a thick scum of greenish-black petroleum quickly appears on the surface of the water, and this is skimmed off and subsequently refined. There is also a large amount of natural gas discharged from the wells, which is stored and used for heating and lighting purposes. Nature's laboratory certainly appears to turn out a varied assortment in this instance.

As a by-product, resulting from the extraction of chloride of sodium by evaporation, comes the *acqua madre* ("mother water") in which, of course, the percentage of the other salts is enormously increased. This condensation, modified in various degrees, is used for inhalation, and has proved very effective in cases of chronic laryngeal and bronchial affections, as well as in obtaining very rapid absorption of iodine, etc., as is easily proved by examining the urine after a single treatment. One may take the inhalations by direct atomization (Pierry's) or by the Jannigen and Beiselen's method, breathing the air of a large room which is filled with a white mist of the finely pulverized water. I have personally known of a case of most troublesome cough from which an old gentleman had suffered for fifteen years, where almost complete relief was obtained after a few days' treatment.

As ordinarily employed, the "cure" consists of twenty-one baths of the natural water from which the "fango" and petroleum have been removed. At the commencement of the treatment the specific gravity is 4% Baumé, and this is gradually increased to 9° or at the most 12°. At the last named density the patient is as "helpless as a jellyfish," and special measures are necessary to prevent his "floating like a toy duck."

The source of the drinking water supply is above suspicion and the village is clean and orderly. The people of the place, whether employés of the baths or not, seem to be a quiet and civil lot, among whom beggars are very rare. The village lies in a pretty little valley at the foot of the Appenines, at an elevation of a little over 500 feet above the sea and surrounded by rather low cultivated hills on which are vineyards, gardens and occasional olive groves. Aside from excursions to three or four ruined castles (Bargone, Vigoleno, etc.), there is but little to do in the way of amusement in the near neighborhood; but fortunately it is a short ride to Parma by rail and but little more than a couple of hours to Milan; so that a fairly able-bodied invalid can easily find entertainment on such "off days" as his cure may permit.

This year a small theatre, or rather *café chantant* has been opened, and light operas (chorus particularly robust) are given every evening. Shops of the better kind are beginning to appear, and as the place attracts the notice which it certainly deserves, all the usual accompaniments of a fashionable spa will follow.

The baths and inhalations are remarkably well done, and everything about the *stabilimenti* is bright and clean. Disinfectants are regularly employed to insure safety; and there is no lack of system (so painfully in evidence at many other places) in carrying out the treatment.

Of the three establishments, the Therme Magnaghi is the newest; but the pleasantest way to take the "cure" is to live at the new Hotel des Thermes in which the water is brought directly from the well onto each floor, and one has but to walk along the corridor to find clean bath rooms and good attendance.

To those who have been jolted about in *chaises à porteurs* after a hot douche in other continental resorts, this will prove a grateful change.

Another advantage of Salsomaggiore is the reasonable rate at which one may live while taking the baths.

So far as medical attendance is concerned, aside from the regularly salaried physicians at the establishments there are Dr. Ceccherelli, professor of clinical surgery in the University of Parma (who has been in the habit of sending patients to Salsomaggiore for many years, and has written a number of neonographs on the therapeutic properties of the waters) and Dr. J. J. Eyre who practices in Rome in winter and is the translator of Celli's book on malaria and Montis (prize) essay on pathology.

The list of diseases in which the waters have achieved good results includes scrofula and other forms of tuberculosis, rickets, chronic affections of the larynx and bronchi, chronic gout and rheumatism, chronic rheumatoid arthritis, pelvic troubles in women and syphilis.

To what extent the salts are absorbed *by the skin* remains an open question; but it certainly seems that a spa whose waters contain something more than a stench of sulphuretted hydrogen and table salt is worthy of the notice of the profession. Such rheumatic cases as I have had an opportunity of observing, have certainly improved after the first ten baths, and the quick relief afforded in two cases of asthma within my personal knowledge, have impressed me with the efficacy of the inhalations. In summer the hotels are crowded with Italians, and the weather is too hot for comfort; but May, early June, September and October are all pleasant and the rainfall usually slight. The place is healthy, and is destined to prove a powerful rival to the best known baths in Europe within the next few years.

Very truly yours,

F. GORDON MORRILL, M.D.

METEOROLOGICAL RECORD.

For the week ending May 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...12	29.72	63	71	55	91	33	62	S W	S	12	5	O.	C.	T.
M..13	29.82	58	66	50	93	43	68	N W	W	8	6	R.	C.	.35
T...14	30.06	59	69	49	54	46	50	W	S	12	15	C.	F.	.0
W..15	30.12	60	66	54	56	65	60	N W	S	9	12	O.	C.	.0
T...16	30.14	56	64	49	59	64	62	N	S	4	9	C.	C.	.0
F ..17	30.03	63	73	53	82	50	66	E	S	8	13	C.	C.	.0
S...18	29.91	51	54	48	86	94	90	E	N E	6	12	C.	O.	.24
☞	29.97		66	51			65							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 18, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Measles.	Diphtheria and croup.
New York . .	3,437,202	1,216	413	26.07	12.25	4.85	.58	3.21
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	171	44	19.88	15.79	—	—	2.92
Cleveland. .	381,768	—	—	—	—	—	—	—
Buffalo . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	109	53	27.52	13.76	1.83	.92	—
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	67	13	14.92	19.40	1.49	—	1.49
Boston . . .	560,892	193	54	25.90	16.06	3.63	1.55	1.55
Worcester. .	118,421	27	10	7.40	22.22	—	—	—
Fall River. .	104,863	33	10	21.21	9.09	—	—	—
Lowell . . .	94,969	41	14	17.08	24.40	—	2.44	4.88
Cambridge .	91,886	21	6	19.04	4.76	4.76	—	9.52
Lynn. . . .	68,513	17	7	29.40	5.88	—	—	5.88
Lawrence . .	62,559	14	9	—	21.43	—	—	—
New Bedford.	62,442	17	2	23.52	5.88	—	—	—
Springfield .	62,059	16	4	—	18.75	—	—	—
Somerville .	61,643	16	5	25.00	6.25	—	—	6.25
Holyoke . .	45,712	16	4	6.25	12.50	—	—	—
Brockton . .	40,063	7	—	28.60	—	—	—	—
Haverhill . .	37,175	8	3	37.50	—	—	—	—
Salem . . .	35,956	11	1	—	—	—	—	—
Chelsea. . .	34,072	8	2	—	—	—	—	—
Malden . . .	33,664	12	3	16.67	25.00	—	—	—
Newton. . .	33,587	7	—	14.30	14.30	—	—	—
Fitchburg. .	31,531	9	2	—	11.11	—	—	—
Taunton . .	31,036	12	2	16.67	8.33	—	—	—
Gloucester .	26,121	6	1	—	—	—	—	—
Everett. . .	24,336	7	2	28.60	—	—	—	—
North Adams	24,206	6	2	33.33	—	—	—	—
Quincy . . .	23,899	—	—	—	—	—	—	—
Waltham . .	23,481	4	1	25.00	25.25	—	—	—
Pittsfield . .	21,766	2	1	50.00	—	—	—	—
Brookline. .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	10	7	30.00	—	—	—	10.00
Medford . .	18,244	5	2	20.00	40.00	—	20.00	—
Newburyport	14,478	1	—	—	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,120; under five years of age 679; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 500, acute lung diseases 277, consumption 231, scarlet fever 70, influenza 2, erysipelas 6, typhoid fever 16, whooping cough 13, measles 13, cerebro-spinal meningitis 14, smallpox 13.

From whooping cough, New York 2, Pittsburg 10, Cambridge 1. From cerebro-spinal meningitis, New York 3, Baltimore 1, Pittsburg 4, Lynn 3, Boston, Brockton and Haverhill 1 each. From scarlet fever, New York 59, Pittsburg 2, Providence 1, Boston 7, Cambridge 1. From typhoid fever, New York 4, Baltimore 2, Pittsburg 5, Boston 2, Worcester, New Bedford and Weymouth 1 each. From erysipelas, New York 5, Baltimore 1. From smallpox, New York 13.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending May 4th, the death rate was 17.3. Deaths reported, 3,799; acute diseases of the respiratory organs (London), 251, whooping cough 133, diphtheria 55, measles 107, fever 20, scarlet fever 34.

The death rate ranged from 9.7, in Croydon to 26.5, in Swansea; Birkenhead 15.9, Birmingham 18.0, Blackburn 20.0, Bolton 21.6, Bradford 15.6, Brighton 14.3, Bristol 15.2, Burnley 16.1, Cardiff 13.9, Derby 17.2, Gateshead 24.1, Halifax 18.8, Huddersfield 15.9, Hull 18.5, Leeds 18.0, Leicester 11.5, Liverpool 20.7, London 16.7, Manchester, 18.5, Newcastle-on-Tyne 18.9, Norwich 16.3, Nottingham 19.3, Oldham 15.6, Plymouth 14.5, Portsmouth 16.7, Preston 18.5, Salford 20.5, Sheffield 18.6, Sunderland 21.3, West Ham 13.2, Wolverhampton 12.7.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED MAY 18, 1901.

J. C. WISE, medical director, appointed member of Examining Board, Annapolis, Md., for examination of candidates for cadets.

W. B. GROVE, passed assistant surgeon, orders as member of Examining Board, Naval Academy, revoked.

C. BIDDLE, surgeon, detached from navy yard, Philadelphia, and ordered to the Indiana.

O. DIEHL, surgeon, detached from the Indiana, and ordered to the Philadelphia Navy Yard.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 23, 1901.

PECKHAM, C. T., surgeon. Granted leave of absence for thirty days from April 19th on account of sickness. May 16, 1901. Granted thirty days' extension of leave of absence on account of sickness from May 20. May 21, 1901.

GLENNAN, A. H., surgeon. To rejoin station at Habana. May 21, 1901.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Meridian, Miss., for special temporary duty. May 18, 1901.

GREENE, J. B., passed assistant surgeon. Granted five days' extension of leave of absence. May 19, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days from May 11th, on account of sickness. May 20, 1901.

CLARK, TALIAFERRO, assistant surgeon. Granted leave of absence for thirty days from May 22d. May 22, 1901.

CORPUT, G. M., assistant surgeon. To proceed to South Atlantic quarantine. May 16, 1901. Granted leave of absence for one month. May 16, 1901.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for four days. May 18, 1901.

SLAUGHTER, A. W., acting assistant surgeon. Granted leave of absence for four days from June 4. May 22, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., May 20, 1901, for the purpose of making physical examination of applicants for cadetship in the Revenue Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman; Assistant Surgeon B. S. Warren, recorder.

SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION. — The forty-ninth annual meeting of the Maine Medical Association will be held in Portland, Me., Wednesday, Thursday and Friday, June 12, 13 and 14, 1901.

ROENTGEN SOCIETY OF THE UNITED STATES. — The second regular meeting of the Roentgen Society of the United States will be held in Buffalo, N. Y., at the University of Buffalo, September 10 and 11, 1901.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. — The fifty-seventh annual meeting of the American Medico-Psychological Association will be held at Milwaukee, Wis., June 11, 12, 13 and 14, 1901. There will be reduced railroad rates as far as St. Paul.

RECENT DEATHS.

GEORGE STONE OSBORNE, M.D., M.M.S.S., died in Salem, May 25, 1901, aged sixty-two years.

ALLEN MELANCHTHON SUMNER, M.D., M.M.S.S., died in Boston, May 25, 1901, aged fifty-seven years.

THOMAS ALBERT O'CALLAGHAN, M.D., M.M.S.S., died in Worcester, April 13, 1901, aged forty-six years.

EPHRAIM LEWIS WARREN, M.D., M.M.S.S., died in Melrose, April 28, 1901, aged seventy-eight years.

HARRIS ORLANDO PALMER, M.D., M.M.S.S., died in Hubbardston, February 17, 1901, aged fifty-nine years.

DR. JOHN A. WELLS, a prominent physician of Englewood, N. J., died from pneumonia on May 21st, at the age of forty-five.

DR. HENRY D. WHITBECK, who had practiced for nearly forty years in Syracuse, N. Y., died in the hospital of the Soldiers' Home at Bath on May 21st. During the Civil War he served in the 98th Regiment, New York Infantry.

DR. CONRAD WEINGES, of Jersey City, N. J., died on May 23d, at the age of fifty-two, from multiple neuritis. He was a native of Charleston, S. C., and was educated at Carroll University. He was graduated from the College of Physicians and Surgeons, New York, in 1883.

BOOKS AND PAMPHLETS RECEIVED.

Clinical Experience with Adrenalin. By Emil Mayer, M.D., New York City. Reprint. 1901.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Address.

THE VALUE OF CLINICAL MICROSCOPY, BACTERIOLOGY AND CHEMISTRY IN SURGICAL PRACTICE.[1]

BY JOHN M. WYETH, M.D., NEW YORK.

For many years, almost without exception, my predecessors in the address on surgery have devoted their labors to the exposition of some general or special subject in the domain of operative surgery, and while I would in no measure detract from the value of a thorough technical knowledge, we should not, in our attention to the *art*, fall short of a proper appreciation of the *science* of surgery.

The experienced surgeon soon learns that it requires more than asepsis and the rapid and skilful performance of an operation to achieve the fullest measure of success; that, although a thorough practical knowledge of regional anatomy is essential in the highest degree to the conscientious fulfilment of the professional obligation, it is equally important that there be called into requisition the invaluable aid which laboratory research alone can give in determining an accurate diagnosis; in indicating the most rational measures of treatment not only in the preparation of a patient for an operation, and in the selection of the safest anesthetic, but for the post-operative management of the case, and in removing as far as possible all doubts as to the prognosis.

Chemical analysis of the normal and abnormal secretions and excretions of the body, *clinical microscopy* and *bacteriology* should form a part of the educational requirement of every surgeon. I do not insist that the busy practitioner should attempt to master all the intricate processes of the laboratory, for this is only possible to one who devotes years of patient labor in the fascinating department of science, but he should possess that practical knowledge of the chemistry of the body in health and disease, and of clinical microscopy and bacteriology which any diligent student, under a competent teacher, and in a properly equipped laboratory, should be able to acquire in a three months' course of study.

The instances are exceptional in practice where this knowledge cannot be applied with great benefit to the patient and with satisfaction to the surgeon. It is naturally of greatest value in the cases where no emergency for immediate operation exists; but its advantages are not wanting in these rarer cases, since it comes to his aid in the post-operative period.

Laboratory research, especially in the department of bacteriology, has placed not only the medical profession, but the entire human family under lasting obligations for the great benefits which have already been derived from its discoveries, and it may be safely said that it has done more than all else in accomplishing the revolution in surgical thought and practice which has taken place within the last two decades. One of the most notable illustrations of this great advance is the triumph which has been achieved over that once fatal disease, diphtheria.

The discovery by Klebs, in 1883, and the isolation and cultivation, in 1884, by Loeffler of the bacillus of diphtheria, had its logical sequence in Behring's invaluable discovery (subsequently elaborated by Roux) that the blood of animals, especially that of the horse, rendered immune to diphtheria by inoculation, first with attenuated, and then with more virulent organisms, contained a substance capable of neutralizing the effects of the bacilli or their *toxin* when simultaneously or subsequently inoculated in non-protected animals.

This antitoxin serum in its dose of 10 cc. of either the 600, 1,000 or 1,500 *immunizing units* is potent not only to arrest the destructive processes which formerly characterized this disease, but to prevent the infection of those who have been exposed to the contagion. How great is the importance of the knowledge that these bacilli are not only always present in the throat of a patient suffering from diphtheria, but that they are frequently found on the nasopharyngeal surfaces and tonsils of persons free from systemic infection, and as shown by Biggs, Parke and Beebe, of New York, they may remain as long as five weeks after the membrane has been discharged from infected subjects, all of which points to the necessity for the isolation of the infected individual, and the careful disinfection of the throats of those who have been about diphtheria cases. (McFarland.)

The statistics of Professor Welch, of Johns Hopkins University, show that the ratio of mortality as a result of these discoveries has been reduced more than 55%, and that in 115 cases, in which by reason of an early diagnosis, the treatment of serum antitoxin was begun within the first three days of the disease, the mortality was only 8.5%. In 546 cases, in which the remedy was begun after the third day of the disease, the mortality was 27.8%, the ratio of mortality increasing with fatal precision as treatment was delayed.

To the surgeon, one of the most gratifying results of this great triumph of the laboratory is the fact that he is now rarely called upon to perform the operation of tracheotomy which was formerly distressingly frequent; nor to witness the sufferings associated with intubation of the larynx. A professional friend in the department of diseases of children informed me recently that, whereas a few years ago he had from 10 to 20 intubations of the larynx on account of diphtheria in every month, he now, since the serum therapy was practised, averaged only 1 or 2.

I believe that what is true of this disease is true of all infectious processes, and that as our knowledge expands, a safe immunizing serum will be discovered for each special toxemia. Even now it would seem that this proposition is proved in other infections in which, like diphtheria in patho-

[1] Oration on Surgery before the Fifty-Second Annual Meeting of the American Medical Association at St. Paul, Minn., June 4-7, 1901.

genic organisms, are localized at the seat of infection, their toxic products alone entering the tissues through the circulation.

Of this type is the spirillum or "comma" bacillus, discovered by Koch in 1884 in the intestinal contents of patients suffering from Asiatic cholèra. These germs are not found in the deeper organs, the morbid changes in the tissues being due to their toxin. Immunizing injections of cholera cultures have already been experimentally and successfully employed, and promise rich results.

In this same group, bacteriologists claim a place for the diplococcus micrococcus lanceolatus of Frænkel, the *pneumococcus*. Sternberg and Pasteur isolated this germ in 1880, and in 1884 Frænkel demonstrated it as the prevailing organism found in the sputum of croupous pneumonia. Very late investigations give encouragement to the hope that serum therapy will soon be applied in the early arrest of the invasion of this most painful and fatal malady. Though pneumonia is strictly a medical disease, its early recognition as a surgical complication, or in view of an anticipated operation, is of very great importance. In a recent case which came under my observation at our laboratory, a specimen of sputum was sent in for bacteriological study. It was not blood-stained or "brick-dust," but yellowish-white in color, like the ordinary sputum of bronchitis, and was supposed to be "grippe," or tuberculosis. The bacillus of tuberculosis was not present, but numerous micrococci lanceolati were discovered, and the laboratory diagnosis was made and confirmed within twenty-four hours by the well-recognized symptoms of consolidation with the "brick-dust" expectoration of this disease which supervened.

Tetanus toxemia, or "lock-jaw," the organism producing which was discovered by Nicolaier in 1894, and which for years has baffled the most strenuous efforts of the bacteriologist and clinician, seems at last to be classified with the controlable infections. Professor Osler, in the last edition of his "Practice of Medicine," says the immunizing serum of Tizzoni has been successfully and encouragingly employed in doses of 2.25 gms. for the first dose, and .6 gms. for subsequent doses. Of 113 cases treated by this method, 63% recovered.

It was not until the discovery of the bacillus of typhoid by Eberth in 1880, and the pure cultures of this germ secured by Gaffky in 1884, that there was made possible in the vast majority of cases of typhoid fever a positive diagnosis.

The demonstration of Widal that when 10 drops of a twenty-four hour bouillon culture of the bacilli typhi were added and thoroughly mixed with 1 or 2 drops of serum from the blood of a typhoid patient, the bacilli lose their motility and become agglutinated in masses, was one of the most brilliant advances in clinical bacteriology, and of great value in surgical diagnosis.

In many of the lesions of the abdominal viscera, and especially in those located in that battle ground of surgery, the right iliac fossa, where the physical signs and the febrile movement may suggest either beginning typhoid, intestinal toxemia or a pyogenic sepsis, an early diagnosis may be determined in no other way than by the aid of the laboratory.

The practitioner who has not called into requisition the invaluable aid which bacteriology affords in the differentiation of those too often obscure intraperitoneal lesions, can not appreciate the satisfaction which this practical application affords. How often the safety of a patient hangs upon even a few hours' time, and, alas, how often this precious time is wasted in the uncertainties of diagnosis, when a resort to the demonstration of science, available to all, would have plainly indicated the proper method of procedure. We know too well the fallacy of relying upon the ordinary subjective symptoms, and even some of the objective symptoms afford us no accurate clue to the pathological process which may exist. The pulse and the temperature of commencing typhoid may well be mistaken for the pulse and the temperature of an appendicitis. The pain and muscular resistance over the right iliac and the right abdominal region are in many instances practically alike. The nausea, the vomiting and the general sense of uneasiness point neither directly to the one or to the other disease, but in a crucial test by Widal's reaction, with the blood count pointing to the presence or absence of a leucocytosis, the question is quickly settled. I have seen all the symptoms of appendicitis present in cases in which the blood count contradicted a pyogenic sepsis, and in which Widal's reaction told the story of typhoid. On the contrary, I have dealt with cases which ordinarily would have been most perplexing, in which all the symptoms of typhoid prevailed at a period when it was too early to recognize this disease by Widal's test, and a leucocytosis of from 15,000 to 21,000 proved at the earliest possible moment that the case was one for immediate operation.[2]

The discovery by Bollinger in 1877 made the diagnosis of that comparatively rare affection, acti-

[2] Two of the cases occurring in my own work within the last few months may emphasize the great value of this technique. A man of thirty was seized with quite severe pains which were confined to the region of the cecum and appendix. Upon palpation there was well-marked resistance in the muscles immediately over these organs which was not observed in any other part of the abdominal wall. He had vomited on one or two occasions, and the temperature ranged from 101° to 103° F. on the second day of this attack. The questions which were presented to the consultants were whether this temperature could be accounted for by intestinal toxemia, by appendicitis or incipient typhoid. Although it was too early in the history of a typhoid case to encourage the belief that Widal's reaction would be present, this was made, and with negative results. On the following day, the symptoms still pointing toward typhoid fever, a careful blood count was made and the leucocytes did not count over 7,000. Assured from this that no dangerous pyogenic process was present, the idea of operation, even exploratory, was abandoned until the examination might be repeated on the succeeding day. A second careful blood count showed no leucocytosis, and on the fourth day, although Widal's reaction was still absent, the case was declared to be typhoid, and the subsequent history proved the diagnosis to be correct, since a few days later the reaction of typhoid was present, and the patient went through the regular stages of this fever. In a second case, a male patient, forty-five years of age, there was a typical typhoid tongue, temperature ranged from 100° to 103.5° F., tenderness and muscular resistance in the right iliac fossa and loose discharges from the bowels not unlike those frequently met with in typhoid. Widal's reaction was tried with negative results on three successive days. The blood count on the fifth day showed the leucocytes numbering 21,000, justifying a diagnosis which excluded typhoid, and confirmed the suspicion of pyogenic sepsis.

nomycosis, clear. In examining the yellow granules and accompanying pus discharged from an infected area he recognized the ray fungus or actinomyces. More recent researches have shown this fungus to be composed of bacilli in various stages of development, some being spores and some more perfectly developed organisms.

In another fortunately rare disease, malignant pustule, caused by the lodgment in an abrasion of the bacillus anthracis, we are indebted to the laboratory for our knowledge of its etiology. The anthrax bacillus, discovered by Devaine in 1863, is not usually found in the blood except in the most malignant cases and in the last stages of fatal infection, but they can be demonstrated in the pustule of inoculation with the microscope or by cultures.

Roux and Chamberland, according to McFarland, have found that filtered cultures will produce immunity when properly introduced into animals, and we reasonably hope from these experiments that the serum treatment will before long be made applicable to infected human beings.

Another rare organism is the bacillus of malignant edema, which was discovered by Pasteur in 1875 and called by him *vibrion septique*. There are only 2 cases of this disease so far reported in man, and they were subjects of abnormally low resistance infected by the hypodermatic administration of a product of musk.

The bacillus pestis or bubonic plague organism was discovered in 1894 simultaneously by Yersin and Kitasato, in blood drawn from the finger tips of infected individuals, and in the broken-down lymph glands, and is described by Kitasato as greatly resembling the micro-organism of chicken cholera.

Bacteriological research has robbed the puerperal state of much of the anxiety and dread which formerly attended this ordeal, not only in preventing sepsis, but in recognizing the infections already established in time to prevent a general peritonitis or septicemia. The puerperal uterus of this organ, when the seat of non-puerperal endometritis, offers an ideal field for bacterial proliferation and invasion, since septic organisms entering the cavity may rapidly penetrate the endometrium and enter the lymph channels, whence they pass into the venous sinuses and lymphatics of the pelvis.

Prof. W. R. Pryor, in a paper read before the New York State Medical Association in 1900, says, "Puerperal sepsis, if not rapidly fatal, almost always produces lesions which seriously damage the pelvic organs or the viscera," and that "time is in this serious condition an important element." He recommends the early employment of the Döderlein tube, which, after sterilization, is passed into the uterus, being protected from contact until the fundus is reached. From the serum and débris thus obtained cultures are made, and the character of the operation — either curettage or hysterectomy — determined by the result of bacteriological investigation.

Not only does the laboratory come to our assistance in the diagnosis of certain obscure surgical lesions of the stomach, but it is still more valuable as an aid in arriving at the exact condition of the digestive functions of this organ, any derangement of which it is at times exceedingly important to correct in order to bring a patient into suitable condition to stand an operation. Thus it is important to determine in certain instances whether or not free hydrochloric acid exists in this organ; and while the total quantity poured into the stomach in the digestive process can not be accurately measured, clinical chemistry can closely estimate the total quantity found at a given moment during digestion. The acid-combining power of the proteids is known, and by certain tests it is feasible to estimate sufficiently close for a satisfactory diagnosis the quantity of hydrochloric acid secreted. The small quantity of hydrochloric acid which combines with ingested inorganic elements is lost to gastric digestion, serving as it does its function in this process in the intestines.

It is clear, as stated by Van Valzah and Nisbit, that the hydrochloric acid which combines with the proteids, and that which remains free, together roughly represent the activity of acid secretion. It is logical then to conclude that the quantity of dydrochloric acid loosely combined with albumin, together with the quantity remaining free in the contents withdrawn at the end of a particular time after eating a particular meal, is a practical and clinical measure of the secretive activity of the peptic glands, and of the digestive work of the stomach. All of this is made sufficiently exact for practical purposes by the laboratory method of analysis after the simple test breakfast of Ewald and Boas, or the more elaborate test meal as recommended by Germain-Sée.[3]

The presence of lactic acid in the stomach contents, as shown by Kelling's test,[4] has a distinct diagnostic value, since it takes place in comparatively rare conditions, and since these conditions

[3] The simplest method is that known as the test breakfast of Ewald and Boas in which on an empty stomach, usually in the early morning, a breakfast roll which contains about 5 gm. of proteids, 30 gm. of carbohydrates, 1-3 gm. of fat, 3-4 of a gm. of ash, and weighs 70 gm., and 300 cc. of water (about a glass and a half) are taken. The bread should be thoroughly chewed and insalivated before being swallowed with the water. Usually in one hour's time a tube is introduced and the contents of the stomach withdrawn, usually by expression or by siphonage, and then filtered. An estimate of the acidity of the filtered contents is made by using a deci normal solution of potash or soda. The number of cc. of this solution which will neutralize 100 cc. of the filtered contents of the stomach expresses in figures the acidity of the fluid withdrawn. At the end of an hour, under approximately normal conditions of digestion, the total acidity should be 50 to 60, the hydrochloric acid albumin 30 to 40, the free hydrochloric acid 10 to 20. Any departure from this rule shows the abnormal absence or excess of this important agent. The test meal of Germain-Sée is at times preferable, since it contains a larger quantity of proteids than the test breakfast of Ewald and Boas just given, but the method of procedure is practically the same. The presence of hydrochloric acid can be recognized by Gunzborg's reagent which is composed of: Phloroglucin, 2 gr.; vanillin, 1 gr.; alcohol (absolute), 30 gr. By spreading three or four drops of this reagent in a porcelain crucible, adding upon this the same quantity of the filtered contents, and slowly warming the crucible, after several seconds a red color appears, and at times the red crystals of free hydrochloric acid are seen. Or the simpler method of employing a filtered paper, which has been soaked in a .5% alcoholic solution of diamethylamidiazo-benzol and dried. This, in the presence of a trace of free hydrochloric acid, turns distinctly red.

[4] Kelling's test consists of 5 cc. of the filtrate diluted to 50 cc. with distilled water, to which one or two drops of official 9% solution of the perchlorid of iron are added. The yellowish-green tinge indicates the presence of lactic acid.

are seldom fulfilled except when carcinoma is present.

Lactic acid is dependent upon the presence of a special bacillus which thrives in the stomach under abnormal conditions, and is capable of converting glucose and lactose into lactic and carbonic acid. Boas goes so far as to insist that the persistent presence of lactic acid in noteworthy quantity during the digestion of a saucer of oatmeal, chemically free from lactic acid, is a specific sign of carcinoma of the stomach.

While the stomach may under varying conditions contain hosts of various bacteria in addition to the one just considered, there are only three others that are of importance as pathogenic organisms. First, the *sarcinæ ventriculi* (in their usual cube arrangement) which when found indicate insufficiency of the stomach muscle due to non-malignant obstruction. They are not found in carcinoma, since they perish in the presence of lactic acid, which, as we have just shown, is so common in malignant diseases of this organ. Another micro-organism is the *yeast plant*, also found when motor insufficiency exists. It may be present when the stomach contents are alkaline, neutral or acid. The *bacillus geniculatus* is present under the same conditions which produce the lactic acid organism, and is considered also to be suggestive of carcinoma.

When the presence of blood is suspected in the stomach, and is not clearly defined by the microscope, chemistry comes to our aid in its recognition by the glacial acetic acid and ether test.[5]

A study of the discharges from the rectum is as yet of little value to the surgeon. Beyond the recognition of blood or pus, or cast-off cell elements in certain malignant neoplasms, there is but a single organism which is of real diagnostic value, namely, the ameba of dysentery, described by Lamb in 1859, which is a motile mass of protoplasm about 20 mmm. in diameter, containing a single nucleus, and one or several vacuoles.

In the differentiation between the pathogenic organisms of specific and non-specific urethritis, microscopy and bacteriology are our only infallible guides. They teach us to eliminate the various bacteria found in the external genital and urinary passages, not bearing directly upon the etiology of urethritis, and to recognize distinctly the two forms of diplococcus, the gonococcus of Neisser, and the pseudodiplococcus, which, while not morphologically different from the specific disease-producing organism, can be readily distinguished by special modes of staining as well as by cultures. In the daily routine of practice the exact nature of every suspicious urethral discharge should be subjected to careful scrutiny. The patient is entitled to the satisfaction of a negative result, which is easily demonstrated by staining the smear with methylene blue, which clearly defines both organisms. If no cocci are revealed all anxiety is put at rest; but if there are present both varieties of these organisms, occupying as they do, the protoplasm of the pus corpuscles, a further research and the differentiation of the true form from the false diplococcus is imperative. The pseudococcus retains the violet color of the aniline-gentian water violet stain, while with careful laboratory technique the addition of the Bismarck brown brings out the gonococcus, the protoplasm of a single pus corpuscle showing at times both the blue stain of the pseudococcus and the diplococcus of Neisser which retains the brown color.[6]

Bearing in mind the fact that the gonococcus of Neisser may remain dormant in these passages for months, and, as maintained by some observers, for years, incapable of a further inoculation of the seemingly immunized patient, but capable of exciting the most acute and injurious inflammation in an innocent victim, it becomes a matter of the greatest importance to subject to most careful study the external genito-urinary passages where an infection has once existed. It has been demonstrated that an artificial urethritis, as that which nitrate of silver produces, will develop the dormant gonococci and cause their presence in the discharge.

Keys and Chetwood, in their excellent volume on venereal diseases, place well-deserved emphasis upon the value of the Gram test for recognizing these organisms. They properly insist that the diplococci should be of the recognized size, and have within the protoplasm of the pus corpuscle their proper shape and arrangement, and remain negative to Gram's staining. Even when cultures are made to demonstrate the specific organisms beyond all doubt, resort should still be had to the Gram staining as a final means of identification.

In cases of pyelitis, many of the difficulties which formerly stood in the way of differential diagnosis between renal calculi, simple pyogenic pyelitis or the presence of tubercular disease in this organ are now overcome by the careful methods of the laboratory.

The presence of the bacilli of tuberculosis in one or both kidneys, even when they are exceedingly infrequent in the discharge, can be demonstrated in urine drawn by urethral catheterization, or by the more simple process of bladder segregation, when the suspected organisms are with other detritus thrown down by the centrifuge. The carbol-fuchsin stain, decolorized with

[5] To 10 cc. of the filtered contents add 3 cc. of glacial acetic acid, and extract the coloring matter of the blood by shaking with 5 cc. of ether. This turns the ether extract brown. When this discoloration does not take place there is no blood. To carry the demonstration further, to the brownish decanted ether extract, 10 drops of fresh tincture of guiac with a few drops of peroxid of hydrogen are added. After vigorously shaking, the mixture becomes clear blue if blood is present.

[6] Dr. Jeffreys, the director of the laboratory in the New York Polyclinic, employs the following differential stain: Use Gram's stain followed by a contrast stain, such as Bismarck brown. To prepare this stain proceed as follows: Prepare aniline water by emulsifying 8 drops of aniline oil in about 10 cc. of water. Filter through a wet filter. To this aniline water, add about one-tenth its bulk of a saturated alcoholic solution of gentian violet. Stain smear with this "aniline water gentian violet" one or two minutes. Wash in warm water, and then immerse in Gram's solution for one minute. The formula for this solution is as follows: Iodin, 1 gm.; iodid of potash, 2 gm.; water, 300 cc. Thoroughly wash in 96% alcohol until no more blue appears to wash out; then wash in water. Counterstain for one minute with a saturated solution of Bismarck brown in 3% aqueous solution of carbolic acid. Wash, dry, and mount in balsam. After this treatment, pseudogonococci should be stained violet, and gonococci should be brown.

5% sulphuric acid, brings out in brilliant red the outlines of the bacilli of tuberculosis, while the addition of 95% alcohol decolorizes the smegma bacillus, and thus eliminates this possible source of error to any but the more expert laboratory workers.[1]

In the effort to arrive at the general condition of a patient, the chemical, microscopical and bacteriological study of the urine is only second in importance to that of the blood; and when we consider the additional and exact information which can thus be obtained concerning any pathological process at any point in the urinary tract, the value of this analysis is very materially increased. A careful study of the urine is always indicated before determining what anesthetic it is safest to employ in the operation to be undertaken. When there is no important lesion of the heart, either in its valvular mechanism or in the blood supply and nutrition of its muscular walls, few surgeons, I hold, would employ ether in a protracted operation in which there was any suggestion of an acute nephritis, or in certain chronic forms of Bright's disease.

It is commendable practice to study through several days the quantity of urine passed, keeping accurate measurement, as well as making a qualitative analysis of that which is passed under conditions as near as possible similar to those to which the patient had been subjected before coming under observation, and then under conditions of rest, with proper alimentation and the free opening of the alimentary canal with calomel and Carlsbad salts (which agents in my experience most readily do away with fermentation and the production of gases in the bowels) to note the changes which occur in excretion.

The presence of oxyluria is in my opinion a contra-indication to a serious surgical operation, for the reason that it is pathognomonic of a disturbed nutrition due to insufficiency of the digestive fluids, and to fermentative processes in the intestinal tract.

An excess of *uric acid*, evident in the rosettes or rhombic or quadrate crystals (one-sixth objective), found in the urine *which has not been passed* more than three or four hours, has also a pathological significance scarcely less than that of oxyluria. It indicates a condition of defective nutrition which is part of the gouty or rheumatic diathesis, predisposes to chronic nephritis, and is one of the symptoms of various acute inflammatory processes, of leukemia, cirrhosis of the liver, gastro-intestinal catarrh, and is often present in diabetes mellitus.

The chemistry and microscopy of the urine further informs us when ammoniacal decomposition of the urine is taking place within the bladder, suggesting insufficiency of this organ due to obstruction of the urethra or to atony of the bladder muscle. The large rhombic masses or stellate and cross-shaped rosettes of the triple phosphates only exist in these abnormal conditions of the bladder, and, with the brownish-colored, thorn-like crystals or urate of ammonia, are important aids to diagnosis.

The presence of epithelia from the various portions of the urinary or genito-urinary tract, of spermatozoa and various bacteria chiefly pyogenic in character, are further and well-recognized evidence of the value of the microscope in surgical diagnosis. In rarer instances, the hooklets of echinococcus, the embryos of filaria and the ova of hemotobium Bilharzii are thus discovered in the urine. The writer has been able once to demonstrate the presence of the eggs of the last-named parasite in the bloody urine of a missionary in Africa, where he had by long residence acquired the disease.

From the laboratory we are taught the well-known tests for albumin and sugar, by which all sources of error may be eliminated in determining not only their presence but the quantitative analysis as well. The pathological conditions in which these substances are excreted are at times exceedingly grave, and it is of vital importance that their presence be discovered, so that timely and judicious treatment may be instituted, or operation avoided which under such unfortunate conditions would be invariably fatal.[8]

In glycosuria the surgeon must know whether he is dealing with what Pavey designates as alimentary diabetes, in which the sugar eliminated by the urine is derived solely from the food as result of defective carbohydrate assimilation; or whether that almost hopeless condition of composite diabetes, in which abnormal disintegration is taking place, is present.

No less important is the estimate of the amount of urea which is being eliminated in a given quantity of urine. Employing the simple apparatus of Doremus with the sodium hypobromite solution,[9] within a few minutes' time, by the evolution of nitrogen gas in the presence of this, the amount of urea which is being carried off by the kidneys is readily demonstrable.

Non-parasitic chyluria (that form not due to the presence of filaria) is a rare affection, but it does exist, the fluid coagulating almost like jelly. In these conditions the microscope shows little

[1] The following process is used at the Polyclinic Laboratory in determining the presence of the tubercular bacillus in the urine and feces. The sediment is thrown down in the centrifuge, the smear dried slowly over the Bunsen burner and stained with carbol-fuchsin, which is then warmed over the Bunsen burner for three or four minutes without being dried. Then wash with water and decolorize with 5% sulphuric acid, and again wash with water. After this add 95% alcohol, which decolorizes the smegma bacillus, and again wash in water, counterstain with methylene blue, and dry. With the 1-12 oil immersion, the clusters of tubercular bacilli are readily seen.

[8] To determine the presence of albumin, the nitric acid and heat test is classical and reliable. The simplest quantitative analysis, as recommended by Hare, is to fill the tube for the centrifuge to the 10 cc. mark with urine, to which is added 2 1-2 cc. of potassium ferrocyanide solution (one part to ten); 1 1-2 cc. of acetic acid is also added. After mixing the fluids well the centrifuge is rotated until the albumin is precipitated. Every 1-10 cc. mark on the tube represents 1% by bulk of albumin: that is, if the albumin extends up to the 3 1-2 cc. mark, the albumin amounts to 35%. Fehling's test in the demonstration of sugar and the quantitative analysis by means of yeast fermentation is another important laboratory process, without recourse to which the surgeon in a certain group of cases can not satisfactorily work.

[9] Solution A, bromin and sodium bromite each 125 gm., water 1,000 cc. Solution B, sodium hydrate 400 gm., water 1,000 cc. Take of A and B each 1 part, water 3 parts. They are only to be mixed when needed for use. After the tube has been filled with the solution the pipette is filled with urine to the 1 cc., and the point carefully introduced beyond the bend. The urine in the pipette is then expelled by compression of the bulb, care being taken not to force any air into the tube.

that is pathological excepting some minute granules and oil droplets similar to those in milk. (Osler.)

The presence of blood in the urine, even in the most minute quantities, can in almost all cases be recognized by the microscope, and in those exceptional instances of hemoglobinuria in which the corpuscles have disappeared, the blood crystals of Teischmann may be recognized by the addition of a drop of strong acetic acid to a few drops of urine placed upon a watch glass. For this condition of blood pigment in the urine in which the blood cells are absent, Osler suggests the name methemoglobin. He further states that when granular pigment or darkly-pigmented urates or fragments of blood disks do not point clearly to the presence of blood, the two absorption bands of oxyhemoglobin, and more commonly the three absorption bands of methemoglobin, of which the one in the red near G is characteristic, may be determined by the spectroscope. In general, however, the red and white blood corpuscles and filaments of clot are clearly recognizable with the one-sixth objective. Even without the microscope the presence of a very minute quantity of blood distributed through the urine can be recognized by Heller's test of adding a few cc. of urine to a drop or two of strong solution of caustic soda and boiling the mixture. If blood is present a bottle-green color is produced, and the phosphates fall to the bottom of the test tube in fine flakes, tinged brownish red by the coloring matter of the blood. (Hare.)

When blood is found in the urine as a complication of papilloma of the bladder, particles of the broken-down tumor are very frequently found in the urine, and under the microscope the epithelial elements of this neoplasm are easily recognized and point clearly to the source of the hemorrhage. In hemorrhage from the kidney substance blood casts tell unmistakably of its source.

Chemistry demonstrates in the urine the presence of indican or indoxyl sulphate of potassium, a product resulting from the decomposition of albuminous products in the intestinal tract under the influence of bacteria. It is always suggestive of persistent constipation, is found in obstruction of the intestinal canal, carcinoma of the liver or stomach, in peritonitis, and is one of the symptoms of pernicious enemia. Urine containing this substance, if treated with two or three times its volume of hydrochloric acid, turns a violet color.

A careful analysis of the various casts found in the urine under different conditions is of inestimable value. Blood casts indicating not only hemorrhage from the kidney, but acute inflammatory conditions, and casts composed of pus corpuscles and studded with micrococci suggesting pyelonephritis, are most valuable results in laboratory research. It also tells us of the existence of granular casts which indicate a chronic or subacute inflammatory process in the substance of the kidney, which is accentuated when fatty casts are found, and that hyaline casts have a grave significance, as they are most frequently associated with chronic interstitial nephritis, and that the waxy variety is very common in chronic suppurative processes, usually in the bones and joints.

Today one of the most attractive subjects of laboratory research is the blood, and although hematology is practically in its infancy, many valuable discoveries have already been made, and in the proper study of a patient a knowledge of the blood is as essential as that of the urine. It may throw no light upon many cases, but the reward will be tenfold in that particular instance where the diagnosis is made definite and clear. It is necessary to know the normal blood thoroughly by constant practice in order to recognize the abnormal changes which may be present in a given case, and I can think of no more useful way of spending the time not taken up by practice than by going over these important features of laboratory technique.

A knowledge of hematology enables the surgeon to detect any form of anemia and to determine whether it is a type of blood impoverishment which can be corrected, or whether it is of the graver or more pernicious forms which would either preclude an operation or, if this were absolutely necessary, would enable him to announce to those entitled to information the gravity of the outlook. In ordinary practice it is not always essential to differentiate between a pernicious anemia or a leukemia, or whether this latter condition is present in the lymphatic or splenic-myelogenous form, for the reason that all of these graver varieties call a halt to operative measures when these can be avoided. But the anemia which comes from malnutrition, or malaria, or chlorosis can be positively diagnosticated by a study of the blood.

The richness of the hemoglobin may in a fair measure be determined by the comparative color test of the blood in proper solution, as observed through von Fleischl's hemometer. When a low percentage of hemoglobin is present, it is an indication to avoid any operative shock until the impoverished condition of the blood can be corrected by proper nourishment, by rest or by medication, when this is positively indicated. This also suggests the aid of the microscope in a further investigation as to the condition of the corpuscular elements of the blood. It is advised by Miculickz never to operate when the register of the hemometer shows less than 35, and it would probably be safer to place the standard 10 or 15 points higher. Even in the simple forms of anemia, the degenerative changes in the blood elements, especially in the red cells, are easily recognized, and are full of valuable suggestions.

When the red cells are near the normal count (about 6,000,000 to the cc.) they may still show certain characteristic deformities of individual cells (poikilocytosis) as well as variations in size in the presence of microcytes and macrocytes which appear in the field, and which are not seen in the normal blood. If the red cells are paler in color than normal, if they undergo crenation or

breaking at the edges, and do not form rouleaux, it is evident that anemia is present.[10] The danger signals are still further in evidence when nucleated red cells (normoblasts) appear, and when there is added to these either the giant red cells (megaloblasts) or abnormally small microblasts, the condition is still more serious, since these corpuscles never exist in the normal blood.[11]

Hematology further enables us to differentiate with reasonable precision between chlorosis and pernicious anemia. In the former, though pale in color, the blood coagulates rapidly, while in the latter coagulation takes place slowly, and the red corpuscles do not tend to the formation of rouleaux. The red cells in chlorosis (which are smaller and paler than normal and are frequently deformed) vary from 4,000,000 to 2,000,000, rarely falling as low as 1,000,000, while in pernicious anemia in which the average diameter of the red cells is increased, the count rarely rises above 1,000,000, and often below this. Cabot gives 1,000,000 as the average number per cmm. The white cells are also diminished, varying from 4,200 to as low as 500, with lymphocytosis as a prominent feature. Megaloblasts are found in both conditions; but, while plentiful in pernicious anemia, are rarely noticed in the milder disease, chlorosis. The more megaloblasts in pernicious anemia, the more hopeless the case.

The surgeon would be extremely unfortunate to fail in the recognition of these often obscure lesions, and, if possible, to correct them before subjecting his patient to the severe ordeal of an operation. In the early recognition of septic processes—chiefly pyogenic—surgery can no longer disregard the value of the blood count, especially the estimation of the leucocytes.

The relative number of leucocytes in a given quantity of blood, or their proportion to the red corpuscles, can be readily determined by the use of the Thoma-Zeiss apparatus which, is as well known, consists of two pipettes, one for the red and one for the white, with a well-outlined and peculiarly constructed slide or counting apparatus, and employed with the ordinary one-sixth laboratory objective. The differentiation by the use of the Daland hematocrit is not considered sufficiently exact to be satisfactory in the hands of the majority of hemotologists. It is essential in making these differentiations to bear in mind the normal conditions that at the sea level the average number of red cells per cmm. is 5,000,000 in men, and 4,500,000 in women, and 6,000,000 in the young and more vigorous adults, while the white cells average about 7,500 per cmm. for each sex.

Certain conditions not considered normal, influence the number of leucocytes since in the latter months of pregnancy they are moderately increased, and after parturition, and during the early weeks of lactation, a leucocytosis may be present, without pathological significance. After hemorrhage the leucocyte count is increased, and in diphtheria, erysipelas, trichiniasis, all extensive forms of endometritis and all acute pyogenic processes, leucocytosis exists except in those cases where the vitality of the individual has been overwhelmed by the severity of the septic process, under which condition the leucocytes no longer respond to the demand for the protection of the tissues, and are not present in the superficial blood in even normal proportions. It is probable that the application of this knowledge is more profitable at present in a study of the various lesions of the abdominal and thoracic organs. We know that in a certain proportion of cases of infection, temperature does not always indicate the increasing gravity of the lesion, while the degree of sepsis can be in great measure determined by the leucocyte count. In impaction of feces, extra-uterine pregnancy, floating kidney, gall-stone colic, renal colic, ovarian neuralgia, intussusception, volvulus, internal hernia, twisted pedicle, etc., there is no leucocytosis unless complicated with an acute septic process. In abscess of the liver the leucocyte count ranges from 12,000 to 48,000, while there is a well-marked increase in all the septic pyogenic processes of the lungs and the pleura.

In osteomyelitis the leucocyte count ranges as a rule from 15,000 to 25,000, and at times higher. Since in the early stages of this disease it is at times difficult by subjective symptoms to differentiate between rheumatism or gout, the leucocyte count is invaluable in demonstrating at once the pyogenic process.

In that very rare disease, trichiniasis, the leucocytes register sometimes as high as 30,000, but the special feature is the presence of a large number of eosinophile cells, sometimes as high as 50%, and in rare cases 67% of the total number of leucocytes being this form of corpuscle. A very considerable number of cases have been reported within the last year, in which the diagnosis had been determined by the presence of eosinophiles.

Not only can the presence of the plasmodium malariæ be recognized in the red blood cells, but hematology is already able to determine between the different varieties of the malarial parasite. It has been shown that the tertian organism takes forty-eight hours to develop and undergo sporulation; the quartan seventy-two; while the estivo-autumnal passes through irregular phases, varying from forty-eight hours to several days.

We are enabled to demonstrate also the presence of the spirochete of relapsing fever discovered by Obermeier in 1873. Although the cork screw or spiral threads are rarely seen unless the blood is examined in the height of the fever paroxysm, diplococcus-shaped bodies, believed to be the spores of this organism, are found in the periods of remission.

The time allotted has permitted hardly more than a suggestion of the methods of laboratory research, applicable in the daily routine of surgical practice. To me the moral of the lesson is that the *science* and *art* of surgery are inseparable.

[10] The average red corpuscle (normal) is 7 mmm. in diameter.
[11] A normoblast is a nucleated red cell not over 10 mm. in diameter, with a nucleas not more than one-half the diameter of the same.

Original Articles.

THE SURGICAL TREATMENT OF GASTRIC ULCER, WITH REPORT OF CASES.[1]

BY F. B. LUND, M.D., BOSTON.

I. PERFORATING ULCER.

IN November, 1899, I had the pleasure of presenting to the Surgical Section of the Suffolk District Medical Society a patient upon whom I had operated in June of the same year for perforating gastric ulcer, the operation having been done sixteen hours after perforation, and in the presence of a general peritonitis. In view of the subsequent history of the case, a few details as to the operation are worth recalling.

The ulcer was situated upon the anterior surface of the stomach, close to the pylorus, and was infolded and sutured in a direction transverse to the long axis of the stomach, so as to avoid stricture. Owing to the extensive general peritonitis, it was necessary to drain both flanks through the wound in the epigastrium, and owing to the presence of pus in the pelvis a second incision was made below the umbilicus, and a tube and gauze passed into the pelvis. The man, when presented at the Surgical Section in November, 1899, was in good health, was engaged in hard labor and had no hernia. He continued at hard labor and in good health until early last month, and had had much better digestion than before his operation, and gained considerably in weight.

On February 14, 1901, he was overcome by gas while working in a manhole, but was rescued and resuscitated. An attack of vomiting ensued later; the same day he was seized with agonizing abdominal pain, and on the fourth day after this attack (to omit details) I operated upon him for acute intestinal obstruction by a band. On opening the abdomen found the stomach normal in size and entirely healthy in appearance. The pylorus was adherent to the under surface of the liver by firm adhesions. The bands which caused the obstruction ran from the lower or pelvic incision to the jejunum, which at the point of attachment of the second band was sharply kinked and completely obstructed. The bowel above the band was dark purple in color, greatly distended, and its muscular coat so far paralyzed that it did not contract sufficiently to pass its contents on into the collapsed ileum on relieving the obstruction. It was, therefore, necessary to open the dilated bowel by a short incision, and empty out a large quantity of liquid feces. As soon as the pressure was relieved by this maneuver the patient began to vomit large quantities of feces, which he was prevented from inhaling by inverting the table. He became very cyanotic, and his condition was extremely serious. The bowel and abdomen were quickly washed and sutured while he was struggling violently and vomiting, as it had been necessary to take off the ether when the fecal vomiting began. He stopped vomiting at about six o'clock that night, his bowels moved the next morning, and he is now having a very satisfactory convalescence.

The case is reported for its interest as to the following points: (1) The perfect health and normal digestion of the man for the year and eight months following the operation; (2) the normal appearance of the stomach found at the second operation; (3) the fact that the band which caused the obstruction was not caused by any operative procedure directed to the stomach ulcer, but by the incision in the lower part of the abdomen, which was made necessary in order to drain the pelvis on account of the general peritonitis. The case, therefore, cannot be used as an argument against operating on the stomach owing to the danger of subsequent obstruction by bands. The danger of such bands is much less in the upper part of the abdomen, where the stomach is situated; and in the now quite extensive literature on the surgery of stomach ulcer, perforating and otherwise, I have found few reports of obstruction by bands following operations on the stomach. The rarity of obstruction by bands, considering the enormous number of operations upon the appendix and pelvic organs which are nowadays performed, seems to me truly remarkable, and the danger from this cause can hardly, it seems to me, be employed as an argument against operating upon gastric ulcer.

At the time this case was reported, in November, 1899, I was able to collect 181 cases operated for perforation in gastric ulcer, since Miculickz performed the first operation in 1880, with 45% of recoveries. In the last 40 cases, which I had collected since 1897, there were 70% of recoveries. Of the 14 of these 40 cases which were operated within twelve hours, 12 recovered, or 86%.

Tinker, in his collection of 232 cases, published in July, 1899, found that of 16 cases operated within twelve hours of the perforation in the three years since 1896, only 3 died, giving a recovery percentage of 82.36.

In June, 1901, Finney, in an able report to the American Surgical Association on the subject of perforating gastric ulcer, by adding to Tinker's list 15 cases from my tables, and 21 collected from current literature, made up a general total of 268 cases, with a mortality of 48%. In the 21 most recent cases the mortality was 38%, and these were operated upon at varying times up to sixty hours after the perforation. Of the 10 of these 21 cases operated upon within twelve hours 7 or 70% recovered.

Although the criticism is just, that the published statistics of gastric ulcer may be too favorable, owing to the fact that certain operators are more apt to publish successful than unsuccessful cases, even allowing for this fact, the low mortality can hardly be other than surprising, considering the nature of the emergency. On the other hand, it must be remembered that the cases are collected from all sorts of writers under all possible conditions, and that certain series by operators of

[1] Read before the Boston Society for Medical Improvement, March 4, 1901, and the New Hampshire Medical Society, June 17, 1901.

special skill under the most favorable conditions might give even more favorable results. However, there can be no question that the mortality of the cases operated promptly; that is, within twelve or twenty-four hours of the perforation, is and will be remarkably low. The importance of such early operation cannot but be obvious on comparing perforating ulcer of the stomach with appendicitis. We are coming more and more to realize the importance of early operation on a perforation of the appendix, the perforation of which does not in the majority of cases mean a direct opening between the lumen of the intestine and the abdominal cavity, as the little organ has to be tightly closed by inflammatory swelling so that it cannot drain into the bowel before there is any danger of its perforating at all. How much more essential, then, is early operation in the perforation of a large hollow viscus, capable of flooding the abdominal cavity almost at once with septic fluid contents.

As bearing in an interesting manner upon the diagnosis of perforation, the relation of gastric ulcer to chlorosis, and the happy results of early operation, I am able to report the case of a young woman upon whom I had the privilege of operating for perforating gastric ulcer, during my service as assistant to Dr. Munro at the City Hospital last fall.

PERFORATING GASTRIC ULCER.

Emily J., age seventeen, single, a mulatto girl, born in Virginia, and occupied in housework, was admitted to the City Hospital on October 3d.

The history was that she had had "stomach trouble" for four or five years, consisting of distress after eating, frequent vomiting of acid fluid and much belching. Had marked constipation. Did not menstruate until sixteen, when she menstruated once, and not again for six months. After that menstruated regularly until time of present illness. Menstruation scanty but not painful. For the past year had had dyspnea and palpitation. For the past year the stomach symptoms had been worse, and the pain was always aggravated by food. For a week before entrance the pain got gradually worse, and she noted tenderness in the epigastrium and headache. The day before entrance the pain was at times so severe that she could not sit up straight. During the week she ate little because it aggravated the pain. She had kept at work all this time, and on October 3d was dressing to go out, when, shortly after 1 P.M., the pain suddenly became so intense that it doubled her up, and she was unable to move. She waited three hours for somebody to come and put her to bed. Half an hour after the onset of the pain she vomited. The vomitus was dark, like coffee-grounds. No coffee-ground vomiting previously. Felt cold but had no chill. No subsequent vomiting. The pain continuing, a physician was called, and she was sent to the City Hospital, where I saw her at 11 P.M., or ten hours after the visit of the pain which probably signalized the perforation.

Examination showed a slight, anemic-looking mulatto girl, in great pain. Gums and conjunctivæ pale. Tongue clean and moist. Heart showed a soft systolic murmur at second right interspace and apex. Pulmonic sound accentuated. Temperature 102.6°, pulse 104 and of good quality. Abdomen slightly distended. Slight general spasm, but very marked tenderness in epigastrium. Less marked tenderness over whole abdomen. Tympanitic everywhere.

Operation. — Under ether. Incision 1½ inches long, median line, half way between umbilicus and ensiform cartilage. Turbid serum free in peritoneal cavity. Incision then prolonged downwards for 3 inches. Flakes of fibrin found on anterior surface of the stomach. On drawing the stomach down and out, on the anterior surface near the cardia, lightly adherent to the liver, was found an indurated area 1½ inches in diameter, in the centre of which was a minute perforation, through which gastric contents escaped. The stomach was then folded on itself parallel to the long axis, so as to include the perforation, and fastened by two rows of fine silk sutures. General abdominal cavity thoroughly washed out, and a gauze wick passed down to the line of suture in the stomach. The greater part of the abdominal wound was closed by sutures.

After the operation the young woman had no serious symptoms, and on the following day we felt justified in giving a good prognosis, in view of the slight spread of the peritonitis found at the operation, and the favorable statistics of these cases when operated upon early. The patient bore rectal feeding so well, and her condition was generally so satisfactory, that she was given nothing but a little hot water by mouth for ten days, when she got rather weak and developed a left femoral phlebitis. Nourishment by mouth was begun at once, and the attack, which was a slight one, quickly subsided. She left the hospital in five weeks. Since then her diet has been under supervision, she has gained in weight and strength, and her digestion has been excellent.

The chief points of interest in this case seem to me to be:

(1) The excellent history of chlorosis with delayed menstruation.

(2) The history of the gradual aggravation of the symptoms of the ulcer during the week preceding perforation, which extension probably coincided with a gradual increase in the depth and extent of the ulcer, and possibly with the formation of light fibrin deposits upon the peritoneum covering it. These symptoms were sufficiently marked, it would seem, in case they had been observed by a physician to suggest a "preperforative stage." In case such an ulcer could be operated upon when threatening to perforate, but before actual perforation had taken place, as would seem possible in such a case as this, ideal results ought to be attained.

(3) The fact that the aggravation of the symptoms, by lessening the ingestion of food, probably caused the stomach to contain little food at the

perforation, a condition which, with the small size of the perforation, probably accounted for the slight extent of the surrounding peritonitis.

In regard to the operation, it was a remarkably easy one, and could not be compared in difficulty with the complicated dissection which is often required in the removal of an appendix buried in adhesions. To draw the stomach out through an abdominal wound, infold and suture an ulcer on an easily accessible portion of its anterior surface, cannot be considered a difficult procedure, and seems to be one which, in the absence of a general peritonitis, — which condition can only be secured by early operation,—ought to be almost uniformly successful.

It is fortunate for the surgeon that, although a vastly larger number of ulcers of the stomach are situated upon the posterior than the anterior wall, perforation of the ulcers of the anterior wall is much more frequent than those of the posterior. This fact is undoubtedly due to the greater fixedness of the posterior wall, affording more frequent opportunity for the formation of adhesions which prevent perforation. According to Pariser and Lindner, quoted by Finney, of 200 cases of gastric ulcer, 190 will be on the posterior wall and 10 on the anterior wall; of the 190, 4 will perforate; of the 10, 8½ will perforate.

II. OPERATIVE TREATMENT OF CHRONIC OR INTRACTABLE ULCER OF THE STOMACH.

There can be no question that a large proportion of gastric ulcers recover temporarily, at least, under medical treatment; consisting of rest in bed, rectal alimentation, careful feeding by the stomach, regulation of the bowels, etc. According to the most favorable set of statistics,— those presented by Leube at the German Surgical Congress in 1897,— 74% got well under five to six weeks of medical treatment. These statistics were based on the unusually large number of 556 cases personally treated by Leube, and may be said to represent the most favorable results of medical treatment. Of the 36% of cases which did not recover, 93, or 21.9%, were improved; 7, or 1.6%, were unaffected by treatment; and 10, or 2.4%, died. According to the most favorable view of the results of medical treatment, then, there are 25% of the cases in which the surgeon may legitimately interest himself in regard to whether he can afford by operative measures any better promise of relief or cure.

The percentage of cases which do not yield to medical treatment is likely, in fact, to be somewhat greater than these statistics indicate, for the reason that in view of the fact that in the absence of hemorrhage an absolute diagnosis of ulcer cannot be made, a fact which was pointed out by Miculickz as affecting the value of Leube's statistics. Of Leube's cases only 19.5% presented the symptoms of hemorrhage either before or after the beginning of treatment. It is, therefore, possible that a variable number of the cases reported as cured were not actually cases of gastric ulcer.

In regard to the actual final results of the medical treatment of gastric ulcer, the results obtained by Greenough and Joslin, in their investigation of 114 cases treated at the Massachusetts General Hospital between 1888 and 1898, are of great interest and value. They found that 80% of these 114 cases were discharged from the hospital cured or relieved, but that at the end of an average period of fourteen years only 40% remained well, and that the mortality in the same period was 20%. This mortality, and the failure to obtain a lasting cure in 60%, indicate that the statistics of medical treatment based on a longer interval of time are not nearly as favorable as those based on the time of discharge from hospital.

Now what can the surgeon do for these cases; namely, the chronic relapsing cases which do not yield to medical treatment? Can he at an operative risk of less than 20% afford a promise of permanent relief of more than 60%? Even Leube, whom Rodman characterizes as the most optimistic of medical men, states that if an ulcer does not yield to one period of four to six weeks' treatment it is not likely to be benefited by a second attempt.

The mortality from the chronic and intractable cases of gastric ulcer, which are the ones which would come legitimately into the hands of the surgeons, would probably be considerably higher than 20% or 25%, and therefore a surgical mortality of less than 20% would be a favorable showing.

The surgical measures which may be employed in these cases may be classified as follows:

(1) In favorable cases, that is, when the situation of the ulcer and the condition of the patient permit it, the surgeon may excise the ulcer and suture the defect in the stomach, thus getting rid of the diseased tissue and affording the most favorable conditions for healing.

(2) In cases where the ulcer is situated near the pylorus, he may combine excision of the ulcer with pyloroplasty, thus relieving the constant irritating spasm of the pylorus, which does so much to keep the ulcer in an active state.

(3) In cases where excision is difficult, from the situation of the ulcer or the condition of the patient, he may by the operation of gastro-enterostomy ensure a free passage of the stomach contents into the intestines with the minimum of work on the part of the stomach walls, and the maximum of rest, therefore, for the ulcerated surface and infiltrated surrounding tissue.

Now what is the mortality of these various procedures? Heidenreich estimates the mortality of gastro-enterostomy for ulcer at 16.4%, and Miculickz makes the forcible statement that the danger to life from gastric ulcer is at least not less, but probably far greater, than that from a complete modern operation.

In regard to the more radical operations of pylorectomy, partial gastrectomy and excision of the ulcer, the tables presented by Rodman at the meeting of the American Surgical Association

last June, make what seems a remarkably favorable showing. He had been able to collect from literature and extensive personal correspondence detailed reports of 40 pylorectomies, partial gastrectomies and excisions, with 6 deaths, or 15%; which, considering that it includes all the cases reported since 1881, when Rydygier performed the first operation of the kind, is extremely satisfactory. It is also to be remembered that this list includes several cases in which the operation was done for suspected malignant disease, so that rather extensive gastrectomy was done; a fact which renders the case still more favorable. We must also not forget that the majority of these cases were referred to the surgeon late in the disease, when repeated vomiting and long starvation had rendered the patients poor subjects for surgical intervention.

A most important contribution to this subject was made by Mayo Robson, who, in his recent Hunterian Lectures, reports 188 operations upon the stomach, with a mortality of 16.4% for gastric ulcer, excluding perforation and hemorrhage. He concludes his paper with a plea for earlier resort to surgical measures, to which his standing and experience give authority. "My own experience and a careful study of the subject," he says, "would lead me to say that the time has not yet come for a sweeping change to be made in the treatment of uncomplicated gastric ulcer, except in the way of more rigid and prolonged medical treatment; but that when the ulcers prove intractable, or when complications supervene, medical treatment should give place to surgical treatment at a much earlier stage than has hitherto been the custom. It is unfair to the surgeon to hand over to him moribund patients, as is at present so often done; and it is, in my mind, unjust to the patient to persist in dosing them with medicine, or otherwise treating palliatively cases that can be only benefited or cured by surgical means."

The statistics published by Miculickz in 1897, comprising the results of his own, Czerny's and Billroth's (von Hacker's) clinics, show in an instructive manner the decrease in the mortality from operations for benign stricture of the pylorus and uncomplicated stomach ulcer. Before 1890, in the three clinics, 27 of these operations had been performed, with a mortality of 13, or 42%. From 1891 to October, 1896, there were 38 operations, with 7 deaths, or 18.3%. Between October, 1896, and March, 1897, Miculickz performed 10 of these operations *with no mortality*. In cases collected from all sources, including the above, from 1895 to the beginning of 1897, there were 60 cases, with 6 deaths, a mortality of only 10%, while the total mortality of all cases, from the first reported up to 1897, 238 in number, was 21.8%.

To the literature of the excision of chronic ulcer of the stomach, in a case in which the character and severity of the symptoms lead to the suspicion of malignant disease, and therefore to early operation with most fortunate result to the patient, I am able to contribute the following case, which I had the opportunity of operating upon, owing to the kindness of Dr. J. C. Munro, in his service at the City Hospital last autumn:

J. S., thirty-seven years of age, born in Ireland, and a coachman by occupation, was admitted to the hospital on November 21st. His history showed that for the past year he had suffered continually from indigestion, with occasional vomiting. He had had to be careful about his diet, a matter which was difficult, considering the character of the boarding-houses where he lived, and had had frequently to change his boarding-place. Numerous common articles of diet he could not keep on his stomach, and he was totally unable to digest meat which had any fat on it. For the two months before his entrance to the hospital he had been unable to eat, on account of pain and distress in the epigastrium caused by food, and had had frequent vomiting of bright blood and coffee-ground looking material. He had lost considerable weight. On physical examination he was found to be pale, emaciated and cachetic looking. During three days, in which he was restricted to a diet of beef-juice and predigested milk, he suffered from epigastric pain and occasional vomiting. A test breakfast showed the absence of hydrochloric acid from the stomach contents, and the presence of lactic acid. On November 26th, as the vomiting still continued, he was placed on rectal alimentation, under which treatment his condition somewhat improved and the vomiting ceased.

The diagnosis lay between ulcer of the stomach and malignant disease; and in favor of the latter were the man's appearance, cachexia, emaciation and the absence of hydrochloric acid from the stomach contents. At any rate, the probability of malignant disease was strong enough to indicate exploratory operation, in view of the slight danger of exploration, and the fact that if such disease were present, the very earliest operation alone could afford any hope of cure. Therefore on November 30th he was etherized, and a short median incision made above the umbilicus. With the finger a mass was felt in the lesser curvature of the stomach, whereupon the incision was prolonged five inches, the stomach drawn as far as possible outside the abdomen, and the surrounding area walled off with gauze. On the lesser curvature was found an indurated mass about two inches in diameter, surrounded by a brawny, infiltrated area, which extended to within three-quarters of an inch of the pylorus, and two-thirds of the distance to the cardia. This infiltrated area extended further onto the anterior than the posterior surface of the stomach. The mass at its center could be felt to be an ulcer, with very thick indurated irregular edge, which felt exactly like a malignant growth.

Therefore excision was proceeded with by first tying the gastro-hepatic omentum with catgut, and then applying long clamps to the stomach wall well outside the indurated area, both above and below it, and excising the mass with scissors. The clamp on the cardiac side slipped, and the larger vessels

on that side had to be clamped separately. The very large gap left by removing the mass was closed in a longitudinal direction by two layers of silk sutures, the first layer consisting partly of Cushing continuous suture and partly of interrupted sutures, so placed as to control the bleeding vessels. This first layer included only the muscular and mucous coats. As the suture proceeded toward the pylorus it was found that so much of this narrower portion of the stomach had been excised, that the longitudinal suture would completely obliterate the lumen, so that the pyloric portion was brought up transversely across the end of the longitudinal suture, making a plastic, which restored the lumen excellently well, but left a T-shaped wound. The operation was finished by a continuous Cushing suture of the peritoneum along the whole line, infolding the layer, and fortified at the angle of the T by a few interrupted sutures. At the end of the operation the stomach was about the size and appearance of the upper part of the small intestine, its caliber being, perhaps, a little greater than that of the slightly dilated duodenum. Two enlarged glands were removed from the lesser omentum, close to the aorta. The operation was finished by suture of the abdominal wound, two gauze wicks being carried down to the suture line through its upper angle.

There was little or no shock attending these procedures, which lasted an hour and three-quarters. The pulse at the close was 90, full and regular. The stomach had been washed out the evening before and the morning of the operation. The convalescence was uneventful. He did not vomit even on coming out of ether. He was placed on rectal alimentation, and on the fourth day the administration of liquids by mouth was begun. On the seventh day the wicks were removed. There was a moderate discharge from the sinus after this, which for three or four days had the odor of gastric contents. This, however, soon ceased, and four weeks after the operation he was up and about, and his diet was extended to include soft solids.

Five weeks after the operation he was distinctly gaining in weight and general condition.

On January 16th he left the hospital. He was then eating three fair meals a day, and only had distress after eating an unusually large amount. His diet was carefully supervised in the Medical Out-patient Department. He has since been hard at work washing carriages. He has steadily gained in weight and general condition, and now feels well, works hard, and is able to digest fat meat and various foods, which he could not manage before the operation.

The ulcer, when excised, was found to be about one and one-half inches in diameter and three-eighths of an inch deep, with a gray sloughing base, and hard, indurated, grayish edge. Sections taken from various parts of its edge showed extensive growth of old fibrous tissue, infiltrated with leucocytes, and lymphoid and plasma cells. There was no evidence of malignant degeneration in any part of it.

We had to do with a large ulcer, which was evidently chronic, as shown by the amount of fibrous tissue in the walls, and which was situated so near the pylorus as to be evidently troublesome by causing spasm of that muscular ring. Its appearance and position showed that it was of a kind which would have proved rebellious to treatment, and the condition of the patient since the operation has left little to be desired. Therefore I cannot help but feel that, although the operation was performed under the probable diagnosis of malignant disease, it has resulted in ridding the man of a serious trouble more quickly, and perhaps, everything considered, more safely than any other way. For his condition at any time, either during or after the operation, did not suggest danger, and to my mind confirmed the statement of Miculickz, quoted above, that the danger to life from a complete modern surgical operation is less than that from the disease.

THE SURGICAL TREATMENT OF HEMORRHAGE FROM GASTRIC ULCER.

In the treatment of hemorrhage from gastric ulcer, we approach the most difficult, and yet the most interesting, subject connected with the surgery of this condition. Hemorrhage, which occurs as a symptom in 80% of cases of gastric ulcer, is fatal in only about 5% of these cases, its fatality being variously estimated at from 3% to 11%.

In about 50% of the fatal cases, death is due to grave anemia and exhaustion from frequently repeated slight hemorrhages; and heretofore, so great has been the confidence in medical treatment in this class of cases, that the patients have been, for the most part, brought under the surgeon's care when exhausted and emaciated to the last extreme. In this class of cases, namely, the small and frequently repeated hemorrhages, which is the one most amenable to surgical treatment, Rodman's tables give 31 operations, with 5 deaths, the low mortality of 16.1%. In 12 gastro-enterostomies for this condition there has been no mortality, which Rodman rightly characterizes as a most favorable showing, and one which should lead to more frequent operation in cases of this kind. Robson is also in agreement with Rodman, in advising surgical treatment in cases of this character, and it seems to me that, in view of these results, none of us would be justified in letting a patient sink into a critical condition from repeated gastric hemorrhage without resorting to surgical measures.

In regard to the treatment of the severe and copious hemorrhages, which reduce the patient at once to a condition of grave anemia, we have a more difficult question to deal with; and on examining the results of the surgical treatment of such cases, we find that the mortality has been high — 64.2%, according to Robson; 37.5%, according to the more accurately analyzed tables of Rodman. Now, in view of the fact that death rarely results from a first hemorrhage, even if severe, these figures contra-indicate operation during the first attack of severe hemorrhage, and it would seem

as if the treatment should be limited to rest, opium and salt infusion, as in hemorrhage elsewhere.

When, however, a first copious hemorrhage has been recovered from and been followed by a second, is a policy of inaction justified? Rodman, on the basis of a careful examination of 60 reported cases, concludes, I think rightly, that it is not, and that a too long delay after the second hemorrhage is hazardous. He quotes the case of Elder, which was lost by a too long delayed operation, and those of Tubby and Michaux, which would, in all probability, have recovered had they been operated upon after the second hemorrhage. Successful operations, after the second hemorrhages, have been reported by Armstrong, Andrews and Hirsch, whose cases were all operated upon in a condition of extreme anemia, and the cases of Cazin, Robson and Roux recovered when operated upon after three severe hemorrhages. Rodman points out that the mortality of 37.5%, although high, is not a prohibitory one, when we consider that the cases so far operated upon have been extreme ones, and only turned over to the surgeon when death seemed inevitable without surgical intervention.

Another reason for intervention in hemorrhage is the frequency with which a bleeding ulcer subsequently perforates, and the fact that operations for hemorrhage generally cure the ulcer and accordingly prevent subsequent perforation.

In favor of an active, rather than a waiting, policy in the presence of acute hemorrhage from the stomach, may be cited the experience which we have all been through of recent years in connection with intra-abdominal hemorrhage from extra-uterine pregnancy. The policy formerly pursued in the most acute hemorrhages, when the surgeon found the patient pulseless, sweating, restless, and on the verge of dissolution, was to stimulate freely and await reaction before submitting the patient to the so-called shock of an abdominal operation. We all of us remember, in recent years, papers by some of our best surgeons advocating this policy; but we have since found that it is safer to stimulate a bleeding patient *after* rather than *before* a bleeding artery is tied; and that by the aid of copious infusions of salt solution, begun at the same time with the operation, we can spend the ten minutes required to open the abdomen, pull out, tie off and remove the tube and sew up again better than inactively allowing the bleeding to continue; and that, so far from there being any shock connected with the operation, the patient generally has a better pulse at its close than at its beginning, and that in a surprisingly large number of cases recovery ensues.

In spite of the greater complication of the measures required in dealing with a bleeding ulcer of the stomach as compared with a ruptured tube, I cannot but feel that, by the aid of salt infusion and stimulation, such as prove so successful in intra-abdominal hemorrhage from other causes, measures can be practiced which will save from death a certain number of even the most desperate cases.

We must acknowledge that operation for hemorrhage from gastric ulcer is by no means as simple as that for removal of a ruptured Fallopian tube; yet exploratory operation will be sure to reveal a certain number of cases in which simple measures will suffice to stop hemorrhage; and in case the measures directed to the actual control of the bleeding artery would prove too long and tedious for the patient's strength, the surgeon may perform a gastro-enterostomy, thus aiming to control the hemorrhage by placing the stomach at rest, an operation which has been most successful in a majority of instances of gastric ulcer with and without bleeding.

The steps of an operation for hemorrhage from gastric ulcer, as far as they can be formulated from personal experience in operation for other complications of gastric ulcer (I have had no opportunity to operate for hemorrhage), and from a careful study of the measures adopted in the reported cases, would be: (1) Median laparotomy above the umbilicus; (2) drawing the stomach as far as possible out of the wound, and a careful examination for any area of discoloration or induration which might point to the location of the ulcer. In case the ulcer were located in the anterior wall on the pylorus or the first part of the duodenum, it should be excised and the opening quickly sewn up; if near the pylorus, according to the Heinicke Miculickz pyloroplastic method, so as to prevent subsequent pyloric contraction. If on the posterior surface, the same procedure might be adopted, in case the ulcer could be readily exposed by drawing the stomach out and turning it upside down on the abdominal wall.

An ulcer on the posterior surface, not accessible in this manner, might be treated by making an incision through the anterior surface of the stomach, drawing the ulcer up into the shape of a cone and ligating *en masse*, and perhaps, after suture of the anterior opening, reinforcing the fold made at the base of the cone by two or three Lembert sutures. When the ulcer can not be easily reached, and directly dealt with, as when it is near the cardia on the posterior surface, or where extensive adhesions exist, it would seem much wiser to perform gastro-enterostomy as quickly as possible, and trust to the rest from muscular movement of the stomach to control the hemorrhage. This operation is also to be selected without question in multiple ulcers, or those cases, of which several have been reported, where it is impossible to find the bleeding point.

Measures directed to tying the artery *in situ* have proved lamentable failures, owing to the friability of the tissues rendering such procedures tedious and unsuccessful, and the use of the actual cautery has also proved a failure and been followed in one case by subsequent perforation.

A procedure which has suggested itself to me as worth consideration in a case where a patient was *in extremis*, and the indications were to stop

the bleeding and stimulate, and, where the ulcer could be reached, would consist in opening the abdomen and placing clamps on either side and below the ulcer, or drawing it up into a cone and ligating *en masse*, leaving the clamps *in situ*, the ligature in position. Then, after twenty-four or forty-eight hours of stimulation, if the heart responded and the condition made it possible, the wound could be reopened and the conditions dealt with as found. In view of our experience with extra-uterine pregnancy, it would seem at least possible that a desperate case might in this manner be occasionally saved.

To conclude with a brief summary of the indications for surgical treatment of gastric ulcer, I would say:

(1) That in perforation immediate operation is absolutely indicated.

(2) That in cases in which the symptoms fail to yield after medical treatment for a reasonable period, operation, consisting either of excision of the ulcer or gastro-enterostomy, should be performed, and this before the patient has become so exhausted as to render surgical intervention dangerous.

(3) In hemorrhage, where slight, frequently repeated bleeding promises to produce grave anemia or exhaustion, similar early operation should be done.

(4) Where a patient has suffered more than one copious hemorrhage, operation should be performed, and the extent and nature of the procedure should be decided upon according to the power of the patient to withstand operative manipulations, and the conditions found during the progress of the operation.

In this paper only active ulcer and its complications have been considered, and the after effects of ulcer, such as pyloric contractions, hour-glass contractions, and adhesions, which also furnish a wide and constantly increasing field for surgical intervention, have been purposely left out of account.

IDIOPATHIC ABSCESS OF THE KIDNEY.[1]

BY A. T. CABOT, A.M., M.D., BOSTON,

Surgeon to the Massachusetts General Hospital.

ABSCESS formation in the kidney may come about in a variety of ways.

(1) It may be due to injury. When the injury is of a perforating character the infection may reach the kidney from without, or from some wounded coil of intestine. Occasionally an injury which does not open communication between the kidney and some infected area causes an abscess; and this comes about by the conveyance of infection through the blood channels. The injury, by bruising and lowering the vitality of the tissues, furnishes a nidus in which micro-organisms circulating in the blood may find an opportunity for growth.

(2) An abscess may be induced in the kidney by the direct extension of inflammation from contiguous parts.

(3) An inflammation in the pelvis of the kidney often extends through the urinary tubules into the substance of the organ, and in this way abscesses of greater or less size may arise. The pyelitis which in this way precedes a pyelonephritis may be a primary affection, or may be secondary to inflammations in the lower urinary tract. Such extensions of inflammatory processes through the urinary passages make an interesting chapter in the study of renal disease.

I pass over these three most common methods of origin of renal abscess with a mere mention, because I wish to devote this short paper to a consideration of the fourth method of kidney infection, namely, through the blood.

Suppurative inflammations induced in the kidney by organisms brought to that organ by the blood are extremely rare, if we except those abscesses which result from the action of tubercle bacilli. These also I leave at one side. For the subject of genito-urinary tuberculosis is a large one, and a consideration of it here would completely overshadow the subject to which I now especially wish to draw your attention, which is the acute idiopathic abscess of the kidney, dependent upon the action of some of the more properly pus-producing organisms.

The parasites that we have especially to consider in this connection are the streptococcus, the staphylococcus pyogenes aureus, the bacterium coli commune, the pneumococcus and the typhoid bacillus. All of these micro-organisms circulate freely in the blood, and probably most of them are eliminated in some degree by the kidneys. That this is the fact in regard to the typhoid bacillus has been abundantly shown. The infection of the kidney probably comes about as a so-called terminal infection, in which little capillary tufts are plugged by emboli containing the micro-organisms. The greater number of cases of this sort occur in the course of general infections, such as pyemia and septicemia, when abundant infective material is circulating through the vessels. Infections arising in this way usually occur towards the end of life, and both kidneys are usually involved. The depressant effect of the toxins in the blood diminishes the force of the circulation, and thus enfeebles the nutrition of the tissues and makes them less resistant to the invasion of micro-organisms. The functional activity of the kidneys is also interfered with, so that the bacteria are less rapidly eliminated through the capillary loops. Conditions are thus favorable for a clogging of fine vessels and an infection of the tissues about.

The direct implantation of infective material in the kidneys is made still more easy where the heart is involved in the septic process. An ulcerative endocarditis throws into the circulation little septic clots which are too large to pass vessels even larger than capillaries, and wherever these lodge an abscess is pretty sure to form.

[1] Read before the Boston Society for Medical Improvement, March 4, 1901.

In all of these forms of inflammation the renal suppuration is secondary, and a primary ulcerative process is to be sought for, from which the general infection has been started. It is usual in these cases to find abscesses in both kidneys, and not infrequently in other of the parenchymatous organs. As death usually results in such conditions, the pathological nature of the process has been thoroughly studied and is well understood.

While the above is an accurate statement of the usual course and character of these infective, metastatic processes in the kidney, it sometimes, though rarely, happens that an abscess or abscesses which are probably metastatic in origin occur in but one kidney. Instances of this sort are on record in which, death resulting, no source of infection could be found, and in which, therefore, it was once customary to regard the abscess as idiopathic in character.

The cases so interpreted, however, occurred at a time when pathological examinations were less searching than at present, and it is reasonable to suppose that small points of infection in the intestinal mucous membrane or elsewhere might well have been overlooked.

After having thus glanced over the pathology of such cases, I wish to report an observation of a patient affected by an extremely septic process of one kidney in which the infection was due to a pure culture of colon bacillus. The case is interesting, both on account of the rarity of the process, and also because it illustrates the occasional success of active surgical interference in such conditions.

R. A. R., thirty-one years of age, was seen by the writer on May 22, 1900, in consultation with Dr. W. O. Hunt, of Newtonville. The patient enjoyed good health up to the previous February, when he had a chill followed by moderate fever. He had at this time pain in the back, running down into the back of the left thigh. After two days spent in bed, the temperature became normal and the pain disappeared, and he was quickly in his usual state of health. On the 13th of May he was seized with pain in the back, mostly on the right side. This pain presently radiated down into the groin and testis. It was of a severity to require mild opiates for its relief. He had a moderate chill at this time, but was unaware of fever until the 17th of May, when he began to have high fever accompanied by vomiting. Dr. Hunt was now called, and he found the patient mildly delirious with frequently recurring chills, the temperature jumping from 97° F. to about 103.8° F. An examination of the urine showed it to contain albumin and pus in a moderate amount. For twenty-four hours before the consultation he had had no chills, but the ups and downs in temperature had continued. Upon examination, the right kidney was found to be enlarged and tender, the spot of acutest tenderness being in the back. Nothing abnormal could be detected elsewhere by physical examination. The diagnosis of an acute septic inflammation of the right kidney was made, and operation was advised. In order to carry out this recommendation the patient was removed to the Massachusetts General Hospital.

Examination of the urine at this time showed it to have a specific gravity of 1.017, and to contain a considerable sediment of pus and some blood.

On May 23d the patient was etherized and an incision was made in the lumbar region over the point of greatest tenderness, just outside the quadratus lumborum muscle. On opening the fat capsule the tissues within were found to be edematous, and on reaching the kidney a prominent soft area was found, which being incised gave exit to considerable quantity of blood-stained pus. The finger introduced into this cavity broke through softened tissue into what appeared to be the pelvis of the kidney. Another similar abscess was found and opened in the upper part of the kidney. Drainage tubes were introduced into both cavities, and the wound was packed rather snugly to check the hemorrhage which was considerable.

Cultures taken during the operation showed the pus to contain a pure culture of bacillus coli communis. This operation was followed by immediate improvement, but the temperature remained irregular for almost a month. The patient showed but moderate powers of recuperation, and his recovery of strength was slow. On July 18th he reported at the hospital with the wound entirely healed, and his general condition greatly improved. No examination of the urine was obtained at this time, but had no symptoms indicating any persisting inflammatory condition.

He was heard from again in January, 1901, when his health was excellent.

The recovery of this patient precludes the possibility of knowing the precise manner in which the infection occurred. There was no evidence to indicate a probable primary source of infection. In the absence of any external lesion, through which micro-organisms might enter the circulation, it is plain that we must suspect the alimentary canal of having afforded somewhere a weak spot through which the colon bacilli effected an entrance into the blood vessels. Such an explanation is in accord with previously observed facts.

In regard to the treatment of such conditions there seems little or no room for difference of opinion. When the diagnosis of an acute septic process in the kidney is established, the evacuation of the pus should follow close upon the conviction of its existence.

In the presence of chills, high and variable temperature and delirium, together with the local symptoms of pain in the renal region, and with a swollen and very sensitive kidney to be felt, the diagnosis is not difficult. In most cases an examination of the urine gives confirmatory evidence by showing the presence of pus and a small amount of blood in the urinary sediment.

If an abscess has broken into the renal pelvis the amount of pus in the urine may be very great. The only conditions which may be confounded with this are: (1) An acute exacerbation of inflammation in a tuberculous kidney; (2) an acutely inflamed calculous kidney; and (3) a

congested and hydronephrotic kidney due to mobility.

In either of the first two conditions there is usually a history of long-standing trouble. We cannot, however, rely wholly on this probability, for renal tuberculosis and calculus may be very insidious in their early stages. It is, however, extremely rare to see them take on sudden exacerbations of inflammation unless instrumentation has introduced a mixed infection into the urinary passages.

It may occasionally happen that an extremely congested and swollen movable kidney gives rise to symptoms closely simulating the above without the formation of pus.

I have, in a number of instances, seen the kidney enlarged and painful with an accompanying fever, and with nausea and vomiting, where the condition was shown to be an intermittent hydronephrosis with acute congestion. In one such case, of which I have full notes, the fever was quite high for ten days, often reaching 103° F. at night. Finally aspiration of the kidney was done to clear up the diagnosis. About an ounce of urine came at first and then the needle drew only blood. This exploration was followed by an immediate improvement in symptoms, and convalescence was quickly established.

In every case of doubt it seems to me justifiable to explore the kidney by an incision. If an abscess is not found, but only a tense, congested kidney, an incision of the capsule along the convexity will afford, usually, great relief. If there is any question of the existence of a calculus the exploratory incision will afford opportunity for a thorough search and for removal of the stone if one is found. If the kidney is movable and suffering from congestion or intermittent hydronephrosis, induced by the twisting of the vessels and ureter, it can be drawn up and stitched in the loin.

Thus the operation offers promise of relief in each and every one of the conditions which is likely to give rise to similar symptoms. It has little or no danger attaching to it, and if an abscess is found, the operation done early will stand a far better chance of cutting short the septic process than it would if it were kept as a last resort.

THE EFFECTS OF TRAINING; SECOND PAPER.

BY EUGENE A. DARLING, M.D., CAMBRIDGE, MASS.

SINCE the summer of 1899, the investigation into the effects of training, instigated by the Harvard Athletic Committee, has been carried on in several directions. In the first place, during the autumn of 1899 an attempt was made to conduct a series of observations on the Harvard football squad, similar to those carried on with the crews and reported in a previous article. In the second place, a number of examinations were made during the year of the crew men who were under observation in the spring of 1899, to determine whether the abnormal conditions developed during that period of training were permanent. Finally, during the 1900 rowing season a further study was made of the university and freshmen crews, largely for the purpose of corroborating the results obtained in 1899. Furthermore, the assistance of Prof. W. O. Atwater and Dr. F. J. Benedict, of Middletown, Conn., were obtained, by whom an exhaustive dietary and digestive experiment was conducted, the results of which are given in a separate paper. Following is a brief summary of the results obtained along the various lines of study:

I. FOOT-BALL TRAINING.

Although a large number of examinations were made, the results as a whole were not satisfactory. It was not possible to follow the individual players with any degree of completeness, owing to the irregularity of their work and the many interruptions due to injuries. The constant excitement attending the practice and games, and the noisy conditions under which the examinations had to be made, were not conducive to accurate observations. A detailed account of the observations would be largely a repetition of those previously reported, so it will suffice merely to point out the more salient features. The routine examinations were made just before the afternoon practice, so as to eliminate as far as possible the immediate effects of the playing and to get the hearts at the supposedly most quiet period. Seventeen selected members of the squad were examined one or more times, chief attention being paid to the hearts and kidneys. It was not practicable to make extended observations on the fluctuations of weight, temperature, etc.

Hearts.— Of the 17 men examined, 14 showed no marked disturbance of the heart's action, although in all the heart was somewhat larger than the normal, and in several instances there appeared to be a noticeable reduction in its size as the season progressed. Several hearts showed some irregularity in rhythm, but without abnormal sounds; and in several the first sound was somewhat harsher than normal at the apex, but not sufficiently changed to be considered a murmur. In three hearts the changes were marked enough to warrant more detailed description. The most pronounced disturbance was in the case of a man who had been an athlete for several years and had had no history of heart trouble. His general condition was excellent throughout the period of training, though once disabled by injury. On October 4th, after about two weeks hard playing, his pulse was 72 and somewhat irregular. The apex beat was in the mammillary line and there was distinct epigastric pulsation. On auscultation a loud systolic murmur could be heard at the apex. This was propagated into the axilla and was audible, though less distinct, in the second, third and fourth intercostal spaces at the left border of the sternum. On October 27th the pulse was 57 and regular. The murmur was still distinct at the apex, but was not conducted. This

improvement was thought to be due to an enforced rest of two weeks, following an injury. On November 17th, just before the Yale game, the murmur could be heard clearly at the apex and very faintly at the left sternal border. In February, 1900, three months after stopping training, the pulse was 76, regular and normal. The apex beat was about half an inch inside the nipple line and there was no abnormal pulsation. The cardiac rhythm was normal, but a faint systolic murmur was still audible at the apex.

The abnormal signs in this case were so marked and persistent, that it seems probable that there was a slight organic lesion of the mitral valve. The condition was not unlike that of one of the crew in 1899, previously reported, and as in that instance, while the hard work of the first part of the training season disturbed the heart's action to a marked degree, there was a steady improvement as the season advanced. It is not to be denied that there is a risk in allowing men with such hearts to take part in contests involving such prolonged and violent efforts as foot ball and rowing, but in the light of these cases it is difficult to predict just what the result in any given instance is likely to be.

In the other two cases of well-marked cardiac disturbance the trouble was of a temporary nature. In one the first sound was always harsh and the action somewhat unsteady, but no murmur appeared until just before the Yale game, when a well-marked murmur was audible at the apex and left sternal border. In the third case the disturbance was marked only at the first examination. This man joined the squad late, and was examined after but two days of hard practice. The chief abnormal sign, beyond enlargement of the cardiac dulness, was a loud blowing systolic murmur at the left border of the sternum. At subsequent examinations this gradually became fainter, and after four weeks it disappeared entirely.

The condition of the heart immediately after playing a hard game was studied in a number of instances. The effects as a rule were like those observed after hard rowing; that is, an increase in the area of dulness, increased pulse rate up to 150 or even more, a roughening of the first sound at the apex, and very often a faint blowing systolic murmur heard most distinctly in the pulmonic area. In vigorous hearts these signs were of brief duration, and were interpreted as indicating merely a passing dilatation. The examinations were all made with the man first standing erect and then with him lying supine. In several instances, but not in all, lying down caused an immediate drop in the pulse rate. In one case, standing, it was 144; lying, it at once fell to 64; standing a second time it rose to 112, and again lying it fell to 68. The normal rate for this man was about 68, and his heart never showed any other disturbance. In a second case the pulse rate fell from 120 to 72 on lying down, and in a third case from 108 to 72. Other cases showed no marked effect from changes of position.

Kidneys.— The urines of 16 members of the squad were examined one or more times during the training season. In each instance the full twenty-four-hour amount was collected and measured, and the specific gravity, percentage of urea and total urea were determined. The specimen was then tested for albumin and the sediment examined microscopically. The average daily renal excretion was 1124 cc., specific gravity 1.027, urea percentage 3.30, and total urea elimination 36.2 gms. In 6 cases out of 16 albumin was present in small amount at one or more examinations and was always accompanied by hyalin and granular casts, an excess of leucocytes and occasionally by red blood corpuscles.

A number of additional examinations were made of urine passed immediately after hard playing, and in every instance considerable amounts of albumin were found (from $\frac{1}{10}$% to $\frac{1}{5}$% Esbach), together with many casts, and usually red blood corpuscles.

II. COMPARISON OF EFFECTS OF ROWING AND FOOT BALL.

On the whole, the effects of foot-ball training are not markedly different from those of rowing, though the departures from the normal are not as great. This is readily explained by the intermittent nature of the effort in foot ball. The game consists of a series of exertions, each one exhausting, but brief. The intervals of rest occupy a large portion of the time of play. This is in marked contrast to rowing, in which the periods of effort are far more prolonged, and the exertion, while less violent, is continuous. In both sports the effects of training appear to be to accustom the heart, kidneys and other organs to the extraordinary demands, so that as the season progresses they do their work more easily.

III. FURTHER OBSERVATIONS ON THE EFFECT OF ROWING.

During the 1900 rowing season a second series of examinations were undertaken, similar to that of the preceding year, with the object of verifying the facts then ascertained. The general effects on the weight, temperature, heart, kidneys, etc., were in all important points the same, and need not be described again at this time. Two events, however, occurring at the very end of the training season, were of great interest from the physiological point of view. One was the effect on the crew as a whole of the accident which deprived it of its stroke and captain four days before the race, and the other was the collapse of the substitute stroke during the race. On the Sunday preceding the Thursday of the race the captain twisted his right ankle, fracturing the lower end of the fibula. Up to this time the men, with a single possible exception, had been in excellent physical condition. There had been less than the usual disturbance of digestion and other untoward symptoms which are so common during the last part of a severe period of training. The accident necessitated the substitution of a new stroke, and a great

increase in the amount of rowing above that which had been planned for the remaining days, in order to accustom the men, as far as possible, to the new arrangement. The result was a marked change in the general tone of the men. The calmness and quiet determination which had characterized them hitherto was replaced by a nervousness and restlessness, and they attacked their work with a kind of desperation. Coincidently, there was a temporary falling-off in the appetites, and in most cases some loss of sleep. The effect on the weights was striking. The men were not weighed on Sunday, the 24th, so comparison must be made with the Saturday weighings. For purposes of comparison let us take only the afternoon weights of the 7 men who were in the boat during all of the last fortnight. On June 14th, when the crew arrived at New London, the average weight of the 7 was 171.9 pounds. During the following week it fell to 169.6 pounds. It then rose once more and reached the former mark on June 23d, the day before the accident. After this it fell, on the average over 4 pounds per man, reaching 167.2 pounds just before the race. Allowance must be made for the loss of weight which always occurs before a contest. During the corresponding period in 1899 the average loss was a little over 2 pounds per man, most of this coming during the last twenty-four hours.

The excessive loss of weight may be attributed partly to indigestion, partly to insomnia, and partly to the increased work done. However, the condition of the men on the whole, just before the race, was thought to be fairly good, though not as good as it had been a week earlier. With the exception of the substitute stroke all finished the race in fair condition. One man, who was apparently all right at the finish, fainted about fifteen minutes after boarding the launch, but this was probably due largely to the fact that he lay down in the stern near the engine, where the air was close and hot. He revived after a short time, and showed no lasting ill effects.

The case of the substitute stroke deserves more detailed description. The sudden responsibility thrown upon his shoulders and the unavoidable hard work during the last three days before the race, had unquestionably affected him more seriously than any one else. He had lost about 5½ pounds and had been troubled a good deal with insomnia and indigestion. After rowing an exceedingly effective race for three miles he suddenly collapsed, and during the last mile was practically helpless and unconscious. After the race he remained in a semiconscious state for about an hour. He could be partially aroused with some difficulty, but wished to be let alone. He was then perspiring freely. His pulse was about 120 and rather weak, and respiration was rapid and sighing. The din of whistles and guns forbade a careful examination of the heart, but a superficial examination revealed nothing but a rapid, weak action. The temperature could not be accurately determined until an hour after the race, when it was 100.4° in the axilla. It was probably considerably higher than this at first, as meantime he had been repeatedly douched with cold water and had perspired freely. After reaching the quarters he swallowed a cup of hot bouillon but immediately vomited it. During the afternoon he remained quiet and comfortable but complained of great drowsiness. In the evening he was able to retain some toast with hot water.

He passed from under the writer's observation at that time; but in a letter written four weeks later he stated that, while he recovered from the immediate effects within two or three days, he had not yet entirely regained his former vigor. The symptoms described were those of collapse due to overexertion when not in perfect condition, and in all probability greatly intensified by the heat. He said afterward that he remembered feeling unusually hot before the race. He had already had an attack of heat prostration several years before, which may have predisposed him to this. The occurrence was a very unfortunate one, but it is only fair to regard it as accidental because resulting from a combination of circumstances which could not have been foreseen.

IV. AFTER-EFFECTS OF TRAINING.

Between June, 1899, and the spring of 1900, examinations were made as occasion arose of the men comprising the rowing squad of 1899, to determine, as far as possible, the after-effects of training, and particularly to study the duration of the cardiac and renal disturbances. Eight of the twelve men comprising the squad were examined and the results were practically uniform. As pointed out in another place the heart during a period of training takes on a considerable degree of hypertrophy, while the immediate effect of a severe effort like a race is an acute dilatation. The latter condition is a temporary one, and seems to become less marked with each succeeding effort if the training is successful; that is, if the man remains in good condition. The hypertrophy, on the contrary, appears to be a more or less permanent change. In the case of the racing men it is to be remembered that they did not lapse into complete idleness after breaking training, but all kept up some kind of active exercise during the summer and autumn. This of course would to a certain extent prevent the return of the hearts to normal size.

It must not be supposed, however, that hypertrophy of the cardiac muscle from training is to be regarded as an undesirable thing any more than a corresponding hypertrophy of the biceps. It is conceivable that too frequent repetition of severe efforts might result in a permanent dilatation and loss of tone instead of in a true hypertrophy; but in these eight men there was no evidence that this had occurred. In every instance, save one, the pulse had a normal rate and rhythm, the heart sounds were normal, and no adventitious sounds could be detected; in fact, the only abnormal signs to be made out were an increase in the distance of the apex beat from the median line and a corresponding enlargement in the area of car-

diac dulness. These measurements differed but little from the corresponding measurements made in June just before the race.

The only exception was in the case of the man whose heart was profoundly disturbed during the period of training, as described in detail in an earlier paper. In March, 1900, nearly nine months after stopping training, examination of this man showed an irregular pulse rhythm. There was still a murmur, audible faintly but clearly at the apex and at the left sternal border. In this case, as pointed out before, there was probably an organic valvular lesion dating back to an early illness and not attributable to training.

Examination of the urine of these eight men showed in most cases an early disappearance of the albumin and casts. One man, examined July 17th and August 10th, still presented a trace of albumin but no casts. Further tests were impossible in this case, so the duration of the albuminuria is not known.

Beyond the cardiac and renal conditions the men presented little of importance. Several stated that they had suffered from indigestion shortly after stopping training, due probably to the fact that they unconsciously continued the habit of eating large amounts of food after they had ceased to need it. Otherwise they all claimed to be in perfect health, and their appearance did not belie their words. There was an increase in weight of from three to twenty pounds, not so much during the summer as during the following winter; but this may have been simply the natural increase in fat commonly seen in cold weather.

In summary, it may be said that no ill effects, which could reasonably be attributed to training, were to be discovered nine months after stopping the training.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

Regular meeting, March 4, 1901, Dr. Walter Channing in the chair.

Dr. Fred B. Lund: In view of a case of transplantation of skin shown by Dr. C. B. Porter at the last meeting, I thought it would be of interest to present this case, showing that a favorable result sometimes may be obtained by the Tiersch method of skin grafting. This man had a skin flap taken off the back of the arm by a revolving electrical machine, the flap having the pedicle the wrong way from the blood supply. When put back in place it sloughed and left a raw surface. The only difference between this graft and the ordinary graft is that the slices of skin were cut as large as possible, and that grafting was done onto the surface of the ulna after chiselling off a necrotic layer. A graft was placed directly upon the bone, which took in very good shape. This graft was dressed not by being covered with protective, but by dry dressing, the dressing removed at the end of the second day. It practically healed by first intention. This graft was done in October, and he has been at work since November.

Dr. Lund then read a paper entitled

THE SURGICAL TREATMENT OF GASTRIC ULCER, WITH REPORT OF CASES.[1]

Dr. Arthur T. Cabot: I have been very much interested in the paper. It certainly presents a very important subject, and gives a great many points which are well worth thinking about. I have had but little experience in the treatment of gastric ulcer by surgery. I have had one case where the ulcer had perforated — I forget how many hours before. The case has been published — the perforation being a very small one, and the escape into the abdomen not of fluid contents, but of gas. The patient had been greatly troubled with flatulency, and when I saw her the most prominent physical evidence of perforation was the total disappearance of the liver dulness. The percussion note of tympany wholly covered the liver. In that case I turned in the ulcer in the way that Dr. Lund practised in his case, and with a perfectly good result. The patient made an excellent recovery.

In regard to the treatment of hemorrhages from these ulcers, I have had also but one experience. In that case the patient was transferred to my service from the medical wards after having had several very severe hemorrhages, and was in bad condition. The abdomen was opened. The site of the ulcer could be perfectly made out. It was on the lesser curvature, and, if the patient had been in decent condition, I think the operation of choice would undoubtedly have been to excise the ulcer in the manner that Dr. Lund practised in the chronic ulcer he described. The patient was not in good condition, and, as some quick operation had to be done, I tried the plan of throwing a ligature round the ulcer, taking a running stitch through the stomach wall all around the indurated area. In drawing up this stitch the ulcer was pushed inwards so that the peritoneal coat should be pulled together over it. In this way it was hoped that if there was sloughing in consequence of the strangulation of this bag-string stitch, the peritoneum should have a chance to glue together outside before the sloughing occurred. This operation was followed by several days of cessation of the bleeding which had been pretty constant before, and the patient began to get into a condition when it seemed to be possible to think of doing something more for the removal of the ulcer, when suddenly he had a tremendous hemorrhage when no surgeon was about, and died. The friable condition of the walls of the stomach in this case, and the difficulty of puckering them accurately for closing off the bleeding part, would lead me in the future, finding an equally indurated condition, to proceed to excision of the ulcer even at the expense of a considerably prolonged operation.

[1] See page 548 of the Journal.

DR. JOSLIN: I have been very much interested in Dr. Lund's paper, especially because, so far as I know, in the last two years nothing of importance has been contributed on the medical side to the treatment of gastric ulcer, and all we have to look for is in the improvement of the surgical methods.

The case Dr. Cabot spoke of I remember very well, because I was in the hospital at the time. Such a case now would, I think, be turned over to the surgeon many days, if not several weeks, earlier, because it was one of the cases of repeated hemorrhages, and statistics have shown that these cases are the dangerous ones.

In thinking of hemorrhage from gastric ulcer, it is well worth bearing in mind what Hood spoke of and what Dr. Greenough and I found to be true at the Massachusetts Hospital; namely, that women under the age of thirty do not die of hemorrhage from gastric ulcer. Of the cases of gastric ulcer at the Massachusetts Hospital, about 75% occurred in women under thirty years of age, and about 80% of these had hemorrhage. None died. In fact only one death occurred in a woman due to hemorrhage from gastric ulcer, and she was about forty-two, whereas of the 30 male patients, 4 died of hemorrhage.

DR. LUND: I was very much interested in what Dr. Joslin said in regard to young women under thirty not dying from hemorrhage from ulcer of the stomach. There is, I think, a very good pathological reason for this. Gastric ulcers fall into two types—the acute and the chronic. The acute ulcers occur in chlorotic young girls, and one finds an inflammatory infiltration of the ulcer and the surrounding tissue, not a formation of fibrous tissue. It is an acute inflammatory process, attended by rapid ulceration, and one which perfectly perforates. The majority of perforated ulcers will be found in young women; though hemorrhages are common, fatal hemorrhages will be rare. In the chronic variety, on the other hand, you get a deep indurated affair progressing slowly and forming adhesions. These ulcers get very deep, and if adhesions form, say, between the stomach and the pancreas, the latter will be invaded, and hemorrhage may take place from great arteries like the splenic artery. That is the reason those cases die of hemorrhage. It also makes it more unfavorable for surgical interference. Such ulcers have perforated into the aorta and into the heart. This difference in the kind of ulcer which is found in young women and middle-aged men is really the reason why perforation and moderately severe hemorrhage are common in young women, but not fatal hemorrhages, and why fatal hemorrhages occur more often in older patients and in men. Chronic ulcers are more generally situated on the lesser curvature near the pylorus where there are several large arteries — the coronary and the pancreatico-duodenal arteries.

DR. ARTHUR T. CABOT read a paper on

IDIOPATHIC ABSCESS OF THE KIDNEY.[1]

[1] See page 554 of the Journal.

DR. EDWARD M. GREENE: The symptoms and physical signs of abscess of the kidney are often so slight as to escape observation until the time for successful operation has passed. The real nature of the disease may not be settled until the post-mortem examination. Such a case has come under my observation, and seems to be of sufficient interest to justify a brief report.

The patient was a married man, aged thirty-four, a stationary engineer. He was a large man, of unusual health and strength, who had not been sick for the previous sixteen years. After getting overheated by a bicycle ride and cooling off suddenly, he had a mild chill, followed by fever and dull pain in the right lumbar region. Urine was scanty and high colored. These symptoms lasted only a few days, and he was not confined to bed. After a period of five weeks of slight malaise he had a second, more severe chill, followed by fever and pain in right lumbar region as before. He now lost his appetite, had occasional vomiting and considerable prostration, obliging him to take to bed. He presented a dull, mildly typhoidal aspect with thickly coated tongue, temperature of 103° and pulse of 90; there was moderate tenderness on pressure over the right kidney, but no tumor was felt, and there was no dulness on percussion. The twenty-four-hours amount of urine was 17 ounces, of high color, acid, 1,020, albumin, slight trace. The sediment showed a few red blood globules and a small amount of pus, but no casts. There were numerous bacteria in the fresh urine, but no tubercle bacilli. There were no bladder symptoms. No urethral discharge was present, and no stricture was found on examination. For the next two weeks he had normal morning temperature, but a rise of 2° to 3° every evening. He improved in strength sufficiently to be dressed and about his room. The dull pain near the right kidney continued, and was increased on moving about or sitting up. The urine had increased to one quart daily, but contained a little more pus, and a few hyaline casts appeared for the first time.

The next two weeks showed no change in these conditions; but during the following two weeks he steadily lost flesh and strength, became anemic, had night sweats and constant irregular fever. It was now ten weeks since the beginning of his illness, and I was able to persuade him to enter the Massachusetts General Hospital with a view to operation for suspected abscess of the kidney. There was still no tumor to be felt, although there was a small area of resistance to pressure and of dullness on percussion below the liver in the right hypochondrium. The blood count showed 20,500 white corpuscles.

He remained in a surgical ward for two weeks, when it was decided that "there was no definite indication for operation," and he was transferred to a medical ward. He had now lost 35 pounds in weight during his three months of illness, and was evidently in a septic condition. The tuberculin test was tried with negative result. Patient now began to have cough and shortness of breath

with pain in the right lumbar region, in the abdomen and in the back. After two weeks in the medical ward a fluctuating mass was made out just below the right costal margin, and he was returned to the surgical ward. An opening was made in the right hypochondrium, and a quantity of dirty brown, foul-smelling pus containing necrotic tissue was removed. There were no hooklets. It was thought at this time that there was an abscess of the liver. About two weeks later an opening was made in the ninth intercostal space, posterior axillary line, on account of signs of empyema, and nearly a quart of foul pus was removed. A finger introduced through the wound found an opening through the diaphragm about one inch from the chest wall. This was supposed to lead into the liver. The patient now suffered with severe dyspnea and died of exhaustion ten days after the last operation, and after an illness of fourteen weeks' duration.

At the post-mortem examination an empyema was found in the right pleural cavity, a perforation of the diaphragm; the liver, which was normal, was surrounded by collections of pus above and behind it; on the right side, in region of the kidney, a mass was found four or five inches in diameter, generally hard, but soft in places; the ureter ran from it. The mass proved to be the kidney, with pockets corresponding to the pelvis and calices, all full of pus. No evidence of tuberculosis was found. The left kidney was slightly enlarged and pale, but otherwise normal.

This case occurred in 1896. At the present time I feel sure that an early operation would have been done.

Dr. Lund: It seems to me Dr. Cabot has presented a most interesting subject, the cases of idiopathic infection, infection without known cause corresponding to the cases of osteomyelitis occurring in apparently healthy children. The organisms must enter the blood presumably by the alimentary canal, or in these days the inhalation of dust; the organisms may get into the lung, and, perhaps, enter the blood through the respiratory tract. I would like to corroborate what Dr. Cabot has said about the ease and general usefulness of exploratory operations in doubtful swellings in the region of the kidney. Catheterization of the ureters, as far as we know, in the male is difficult and uncertain. The Harris instrument is uncertain, and catheterization of the ureters, in the female, often is distinctly contraindicated owing to risk of infection and for other reasons, but exploratory incision exposes the organ, allows a careful eliminative diagnosis to be made, and direct treatment to any of the conditions found, as Dr. Cabot has said, whether a calculus, hydronephrosis due to movable kidney, or abscess; and it is not uncommon to start with an exploratory incision upon the kidney and end with nephrectomy. Certainly the exploratory part of the operation is very simple and very safe, and results in the decision of a good many doubtful cases and the cure of a great many obscure conditions.

Dr. Arthur T. Cabot: I was much interested in Dr. Greene's account of the extension of the abscess through the diaphragm. I have met with one such case where an abscess behind the kidney extended up posteriorly and made an empyema. I think that is rather a common direction for these kidney abscesses to extend if let alone.

ASSOCIATION OF AMERICAN PHYSICIANS.

Abstract Report of the Sixteenth Annual Meeting, held at Washington, D. C., April 30, May 1 and 2, 1901.

(Continued from No. 22, p. 535.)

FIRST DAY.

Dr. A. Jacobi, of New York, presented a paper entitled

UNCOMPLICATED HEMORRHAGE FROM THE PYOTHORAX.

M. C., seven years old, had been ill for about a month previous to admission to the hospital, complaining of a languid feeling, slight fever, lack of appetite, occasional cough, and some pain in the chest. There was marked dulness over the right lung and down to the fourth or fifth rib, with flatness over the base. Puncture yielded pus. The next day resection was done, and 500 cc. of inoffensive pus flowed out, unmixed with blood. Thiersch's solution was used for injection, and it returned with a little bloody pus, when all of a sudden it was followed by the flow of a large quantity of pure blood. The cavity was irrigated, and then it could be seen that the blood was oozing from disseminated tufts over the pulmonary pleura; some of these tufts were small, some quite large. The cavity was packed with gauze, and when it was removed two days later there was another slight hemorrhage, after which granulation went on in the usual way. Search for malignant tumor was negative, and there was no suspicion of tuberculosis. Dr. Jacobi said the case was unique in his experience, and furnished an additional cause for hemorrhage into the pleural cavity. A search of the literature had brought out no further information on the subject, no similar cases, and his surgeon friends had seen nothing of the kind.

Dr. A. Jacobi, of New York, reported a case of

CYST OF THE OMENTUM.

The patient was a child seven years old when admitted to the Roosevelt Hospital. Four years previously the abdomen had begun to swell; the child lost flesh and failed in health. A paracentesis was performed and 2 litres of slightly bloody serum were drawn off. The child seemed to get perfectly well, but after two years the swelling recurred, was again tapped, and again the child improved. At the time of entrance to the hospital there was a second recurrence. Three hundred cubic centimetres of bloody serum was withdrawn this time, but the operation was cut short by the tube becoming obstructed, it was thought,

by a coil of intestine. The abdomen at once swelled again, and the child was transferred to the surgical side for laparotomy. A thin-walled multilobular cyst was found containing about 2 litres of straw-colored fluid, and it was found to be incorporated with and involving the greater omentum. It was easily removed, and the patient made a rapid and complete recovery. The cyst consisted of several tissues, unstriped muscle fibres, fat and fibrous tissue in layers of different thickness traversed by enlarged blood and lymph capillaries. It was lined both internally and externally by a layer of epithelial cells.

DR. CHARLES CARY, of Buffalo, N. Y., presented

A CASE OF PNEUMONIA COMPLICATED BY PSEUDOMEMBRANOUS EXUDATE ON THE MUCOUS MEMBRANES OF THE MOUTH, TONGUE, PHARYNX, NARES, CONJUNCTIVÆ, GLANS PENIS, ANUS, ETC., CAUSED BY DIPPLOCOCCUS PNEUMONIÆ.

The case here reported is remarkable in one respect,—the occurrence during the course of an attack of acute lobar pneumonia in a boy of eleven years, of a profuse pseudomembranous exudate upon nearly all mucous surfaces of the body open to inspection. There was also evidence of extensive passive pleuritis and probably the involvement of the gastro-intestinal tract throughout its entire length. The affection terminated in recovery by lysis. The pneumococcus was obtained in pure culture from the heart's blood, the organs and the exudate.

DR. FRANK BILLINGS, of Chicago, gave a

REPORT OF THE PROGRESS OF CASES OF PERNICIOUS ANEMIA PRESENTED TO THE ASSOCIATION IN 1900, AND REPORT OF A CASE OF PERNICIOUS ANEMIA WITH DIFFUSE SPINAL CORD LESIONS WITH POST-MORTEM FINDINGS.

Of the 20 cases reported last year, only 10 were living at the time. Of this series, 4 have since died and 4 are still under observation. Of the 4 dying within the past year, only 1 was continuously under observation. This patient was on the decline when reported last May, and stayed in poor condition until October, when an improvement began which reached its height in December, and then the final decline commenced. During the period of improvement the white cell count kept pace with the improvement in the red cells and hemoglobin, and fell with the decline of the other elements just as was noted in the report of last year. The 4 cases now being observed are still on the upper curve of improvement, and the blood count and color is about normal. No nucleated cells have been found since January, 1900.

During the year 9 new cases have come under observation, all in well-to-do people, and no cause for the condition could be found. The condition noted last year, namely, that gastro-intestinal disturbance was a common accompaniment, was noted in all these cases. The history of the case with spinal cord lesions was detailed, together with the post-mortem findings. The diseased area was found to affect particularly the posterior nerve root areas.

DR. PUTNAM raised the question whether the spinal cord changes found in these cases were really essential and peculiar to pernicious anemia, and inclined to the view that they were not due to the anemia as such. He said that the changes as a rule have been scattered, and have corresponded to vascular areas rather than to the nerve root areas.

DR. OSLER remarked upon the necessity for additional study of that group of pernicious anemias in which the anemia occurs subsequent to the onset of the spinal symptoms.

DR. MCPHEDRAN and DR. MUSSER each reported cases belonging to this group, and DR. SHATTUCK gave the history of a case of pernicious anemia that followed and seemed to be associated with a severe mental shock.

DR. D. D. STEWART, of Philadelphia, reported a case of

ACUTE MILIARY TUBERCULOSIS, PRIMARILY SPLENIC.

Presumed primary tuberculosis of the spleen, whether acute or chronic, is rare, but one instance of the former being on record. Dr. Stewart's case is that of a young woman who, while in attendance of tuberculosis, developed symptoms of an acute general infection. When admitted to the hospital the symptoms were rather high fever, debility and enlarged spleen. Miliary tuberculosis was the diagnosis made by exclusion. The patient died fifty-eight days later, and until near the termination of the case there were no symptoms of involvement of other organs. Necropsy showed a greatly enlarged spleen, about one-half of which had been converted into a caseous tubercular mass. There were small miliary tubercles also in the kidneys, liver, lungs and meninges of the brain.

DR. J. H. MUSSER, of Philadelphia, Pa., presented

NOTES ON THE RELAPSING FEVER OF HODGKIN'S DISEASE.

The literature was reviewed and attention called to the paper of Ebstein on chronic-recurring fever, or so-called Ebstein's fever, and to the article in Nothnagel's system on the same subject. Dr. Musser reported 2 cases, the characteristics of which were attacks of fever lasting from eight to twelve days, and alternating with periods of apyrexia. In both cases there was increase of the glandular swellings coincident with the fever, which would rise rapidly to a great height, 105° or 106°, and after ten days terminate by crisis. In the second case cultures and inoculations failed to disclose the nature of the disease, but the patient now has pulmonary tuberculosis. Dr. Musser concludes that this form of fever is in all probability an expression of the glandular form of tuberculosis to which Hodgkin's disease probably belongs.

DR. WELCH called attention to the fact that a considerable number of cases of Hodgkin's dis-

ease have now been shown to be of tuberculous origin, and said that experience at the Johns Hopkins Hospital, where all cases of this disease had been carefully studied, had shown that a surprisingly large proportion turned out to be tuberculous processes.

Drs. Alfred Stengel, C. Y. White and Wm. Pepper, of Philadelphia, read papers on the

study of granular degeneration of the red blood corpuscles.

Granular degeneration of the erythrocyte is a condition in which this cell presents small granules, having a tendency to clump in one or more parts of the cellular protoplasm. The granules vary in size, some being as large as the granules of the eosinophilic leucocyte, others so minute as to be scarcely perceptible, and individual cells may show one or both varieties. The cell substance between these granules usually presents the normal staining properties of the erythrocyte. The granules have an affinity for basic stains and the intensity of staining is in direct proportion to the size of the granule. Attention has been called to these granules as a special degeneration only in the past few years, and Hamel and Behrendt were the first to demonstrate the frequency of this cellular change in the peripheral blood of patients poisoned by lead, and their study led Grawitz to study the blood in experimental intoxications, until he found that shortly after taking even very small doses these changes appeared.

With this in view, the writers of the paper undertook to study this granular degeneration in lead workers, and from the experimental standpoint. In animal experiments the blood was examined for some days previous to the administration of lead, which was given in small doses. The distinct granules appeared after the initial dose, usually in about three days, and indistinct granules were found after twenty-four hours. Their conclusions were: (1) That granules are a constant finding in cases of lead poison, and appear very early in cases under the influence of lead, long before subjective or other objective symptoms can be demonstrated; (2) that these granules disappear in cases of chronic lead poisoning as convalescence is established; (3) that apparently lead does not produce an immunity; (4) these granules may be produced experimentally in a very few days after the administration of lead salts.

Dr. M. Allen Starr, of New York, read a paper on

the toxic origin of neurasthenia and melancholia.

He classified neurasthenias into a variety of different types according to the predominant symptoms, and also according to the origin of the disease. Among the last was a class of cases that he believed to be distinctly toxic in their origin. They usually occur either in poorly nourished women or in men about the age of forty-five who had lived rather freely, had taken little care of their diet, had indulged in the use of alcohol and tobacco, and had neglected exercise. The chief symptoms in this form of neurasthenia, dull pressure in the head and back of the neck, sensations of fullness in the head with inability to concentrate the attention, irritability of temper, irregularities of the circulation, and general disorders of the digestion, either of the nature of acid dyspepsia or of considerable evolution of gas, with irregular and offensive stools. In these cases the urine is irregular in quantity, but at all times contains large quantities of indican. A mild state of melancholia is frequently associated with the neurasthenia. Dr. Starr believed these cases resulted from some toxic agent which accumulates in the blood, and which is manufactured either in the intestines or in the stomach, but he did not know what the toxic agent was.

Treatment consisted in a carefully selected diet, the use of remedies to stimulate liver activity and to counteract the evolution of toxic agents in the intestines, a hot bath on rising, followed by a cool sponging to stimulate the general nutrition of the body, and a carefully regulated exercise and rest.

Dr. Putnam thought that Dr. Starr had not proved his case in regard to the toxic origin of neurasthenias, and added that because a disease is cured by a certain remedy it does not follow that we have found the cause. The vicious circle in neurasthenia might be broken up by many things that had nothing to do with its formation.

Dr. Herter said that in studying the intestinal excreta he had found a definite relationship between the presence of etherial sulphates and indican and the existence of mental depression; an increased amount of these substances in the excreta is accompanied by a greater degree of depression. He had not determined whether it was a case of cause and effect, but some of his experimental work had indicated that it might be. He attributed the good effect of such drugs as calomel to the fact that the free movements produced and diminished the excretion of the etherial sulphates.

Dr. C. A. Herter, of New York, read a paper entitled

the acid intoxication of diabetes and its relation to prognosis.

He spoke of the method of opposing the acids and bases as the best means of detecting the amount of acid in the urine. As a clinical help, the detection of the nitrogen of ammonia was of much value, but not absolutely reliable. He found that with the increase of organic acids, measured as oxybutyric acid, coma was imminent. Crotomic acid was always present, and there was an increase for days, weeks or even months before the onset of coma. Coma develops, if large amounts of oxybutyric acid persist, say quantities greater than 25 grammes per day. When the urine contains little or no trace of organic acids there is little prospect of coma, though other troubles may present themselves.

DR. E. P. JOSLIN, of Boston, Mass., reported a case of

METABOLISM IN DIABETIC COMA WITH SPECIAL REFERENCE TO ACID INTOXICATION.

He related a case of fatal diabetic coma, and gave a detailed account of the chemical analysis of the urine from day to day, with special reference to the varying amount of organic acids.

Dr. VAUGHAN said that we do not yet know what the poisonous agent is in these so-called acid intoxications, but that we certainly know it is not oxybutyric acid nor acetone. He referred to the dietetic treatment of diabetes, and said that experimental work seemed to indicate that abstention from carbohydrates and excessive nitrogenous feeding might often do much more harm than good.

DR. HERTER agreed with this view of feeding such patients, and said that while he was not committed to the nature of the acid in the blood, yet such evidence as exists points to the oxybutyric acids more strongly than to the amido acids.

EVENING SESSION.

The evening session of the association was something of a novelty in its history, in that it was given up entirely to demonstrations.

DR. CHAS. S. BOND, of Richmond, illustrated by stereopticon some features of photomicrography, and explained the method of constructing the apparatus best adapted to securing the most perfect results in this work.

DR. W. T. COUNCILMAN, of Boston, gave a very beautiful and very instructive demonstration, with the stereopticon, of the renal lesions in diphtheria.

DRS. FLEXNER and WELCH each exhibited a number of important pathological specimens.

SECOND DAY.

DRS. BARKER, NOVY and FLEXNER demonstrated the

STUDY OF BUBONIC PLAGUE BASED UPON THE OUTBREAK IN SAN FRANCISCO.

DR. BARKER opened the discussion with a consideration of the clinical aspects of plague, stating that it belonged to the group of septicemic infections or diseases in which the causative agent can in very susceptible individuals produce a general sepsis without local lesion, but which in more resistant individuals gives rise to a disease characterized by local reaction without general sepsis. The character of the epidemic in San Francisco was like that which has prevailed during the early stages of all other epidemics. Thirty-one cases were definitely proven to be plague, and 28 of these occurred among the Chinese. The ordinary cases of plague begin suddenly, usually with a chill, with fever that increases rapidly, but has a curve characterized by intermissions and irregularities; the patient is nauseated, severe nervous symptoms follow, and generally within twenty-four hours the bubo appears. The course of the disease is a continuous and progressive failure until death occurs between the fourth and sixth days. The bubo develops differently from that accompanying venereal affections. The size varies, being sometimes as large as one's fist and occasionally so small that it can not be discovered by inspection or palpation. Buboes are most frequent in the groin, next in the neck, and then in the axilla.

The two principal types of plague are the bubonic and pneumonic forms; and a primary skin plague can probably be distinguished with a local lesion in the form of a carbuncle. In addition to these there is the plague septicemia, which may be divided into primary and secondary forms clinically. By the first is meant a septicemia produced by the entrance of the bacillus into the blood without the development of a bubo. In the secondary form there is a flooding of the blood by the plague bacillus, causing early death. In the early days of an epidemic, and again toward its close, there are usually found a number of mild cases, the patients not being sick enough to prevent their walking about. Such individuals are a source of great danger unless they can be isolated, for it has been proven that the urine and feces frequently contain the plague bacillus for as long as four or six weeks after apparent recovery. The pneumonic form of plague is characterized by a very bloody sputum containing immense numbers of the bacilli.

He referred to the great importance of recognizing the first case of plague, and said that he thought no disease was easier of diagnosis if one could take the proper steps. This should consist in a bacteriologic examination of the sputum, the blood, the splenic juices, and the bubo contents when present. Serum diagnosis is unreliable, except to show whether or not an individual has had the plague. He insisted upon the importance of regarding every case of fever occurring in a place where plague is suspected as being a case of plague, until it was proven to be something else, and furthermore the importance of believing at such times that every cadaver is one of plague until it has been bacteriologically examined.

As to treatment, he said that if he should contract the disease himself, he would promptly load up with the serum.

DR. NOVY considered the bacteriology of bubonic plague, reporting in detail the work done by the Commission in San Francisco, to prove the nature of the disease seen there.

(To be continued.)

LEPROSY IN THE UNITED STATES.— It is said that there are about 275 reported cases of leprosy in the United States. The number would undoubtedly be much larger were all cases promptly recognized and reported to the proper authorities. Of those reported nearly all are foreigners, a large proportion of them being among Italians in New Orleans. In general the disease appears to be spreading most rapidly in Louisiana.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JUNE 6, 1901.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

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A MENACE TO BOSTON'S WATER SUPPLY.

FROM time to time there has been complaint of the danger of an overflow of sewage from the city of Marlboro into the general supply system of Boston. This danger, which exists at all times, is very materially increased by the excessive rainfall and accompanying freshets of the spring months. Owing to the exceptional amount of rain this year, the danger of pollution is greater than ever before, and it has become imperative that protective measures be adopted. It is said to be the opinion of the Metropolitan Water Board that the difficulty is due to a defect in the Marlboro sewage system. Under ordinary conditions the sewers are sufficient for the needs of the city, but they become inadequate when any unusual demand is made upon them, as, for example, during the heavy spring rains. As a consequence, a large amount of surface water has been introduced into the sewers, with the natural result that an overflow of surface water, mingled with filth, has occurred into the lowlands and into the Marlboro Brook filter beds, which are not constructed for the extra demand thereby put upon them. Impurities are apt to get into the Sudbury basin, and thence through water pipes to Boston. It is this state of affairs that is now demanding some radical solution. Negotiations are reported to be now under consideration, which have not yet been made public. It is apparent that the matter is of very vital importance to the health of the city, and, if the above statements are true to the facts, may prove a serious menace, unless the properly constituted authorities are immediately forced to act. A possible repetition of the experience with typhoid fever through which New Haven has just been passing should hasten action still more. If there is any one thing health officials should guard with the most unremitting care, it is the absolute purity of a city's water supply. Because the same conditions have prevailed for a number of years is absolutely no reason why any further delay should occur in remedying an evil which is so clearly remediable as this one appears to be. Moreover, the Boston Water Board early adopted the policy of encouraging the construction of works for the disposal of the sewage from such places. At Marlboro works were projected for disposing of the sewage within the watershed, and were changed so as to convey it a longer distance to a suitable place outside the watershed, and Boston paid $62,000 towards the expense.

A ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

IT is announced that John D. Rockefeller has given the sum of $200,000 for the foundation of what is to be known as the Rockefeller Institute for Medical Research. It is the object of the institute to maintain what is practically equivalent to scholarships in colleges where medical research is carried on, to enable those engaged in pathological, bacteriological, and other scientific work of the kind, to carry on their investigations with more adequate financial support. Dr. T. Mitchell Prudden, professor of pathology in the Medical Department of Columbia University, who has just been elected vice president of the Board of Directors of the Rockefeller Institute, while asserting that it was as yet too early to make a detailed announcement of what will be done even in the immediate future, has given out the following general statement: "This $200,000 will enable us to go ahead with work that is highly important for the general welfare. Much work of an investigating kind has already been done in the colleges, but their principal object, after all, is to teach. The fund given by Mr. Rockefeller will make it possible for men who want to devote themselves to special lines of medical research to do so without being hampered in any way. The possibilities are, of course, large . . . . This fund will provide a means for scientific research into the causes of various diseases, and it is hoped that both interesting and valuable results will follow."

Dr. William H. Welch, of Johns Hopkins Medical School, who will be the president of the Board of Directors, is reported as saying: "Medical research along the lines of preventive agencies is one of the most important matters occupying the minds of medical men today, and the study of antitoxins, serums and other preventives is now being pursued with zeal everywhere. It is to aid this research that Mr. Rockefeller has made his gift."

As we understand the terms of this gift, no money will be spent on buildings, but small sala-

ries will be paid a large number of investigators working in already established laboratories. For instance, in this neighborhood we understand there will be one such in connection with Dr. Councilman's department at the Harvard Medical School, and one in connection with Dr. Theobald Smith's department at the Bussey Institute. There are to be certain directors at large of the Institute, but the detailed investigations will be under the direct supervision of the heads of the various laboratories.

We understand Mr. Rockefeller's present proposition is to give $10,000 a year for twenty years. It is not to be doubted that successful and satisfactory results of a positive character may lead to generous modifications of the present provisions. It seems to be a wise and hopeful scheme, conceived on a judicious basis and possessing large possibilities.

DIPHTHERIA AND BOARDS OF HEALTH.

THE experience of a citizen of a neighboring city with regard to diphtheria and the regulations of the Board of Health is worthy of comment from various points of view. The victim of the affair expresses his feelings graphically, and yet fairly, in a daily paper. The circumstances appear, in brief, to have been as follows: A man is taken ill with a somewhat insignificant sore throat, a physician is summoned, who makes light of the situation clinically but suggests that a culture be taken. This is done by the appointed authorities in the Board of Health, with the result that the diphtheria bacilli are found. According to law, the house where the patient lived is placarded, and he himself is quarantined. In the meantime the sore throat has wholly disappeared, and the patient feels perfectly well. Later cultures, however, remain positive, thereby rendering the person who harbored the bacilli a possible menace to others. Here is the dilemma, which clearly is likely to be looked at very differently by the laity and by the medical profession, whose duty it is to safeguard the public health, if necessary, at the expense of the individual. There is something to be said on both sides of such a question as this, which is likely to become more and more prominent as time goes on. The afflicted individual certainly is not to be blamed for an attitude which to him and to people at large is a wholly natural one. It will always be difficult to induce people to believe that their physical feelings are not a just criterion of their condition; hence, although we may not wholly agree with his conclusions, we can at least sympathize with a man who, so far as his standards go, is well, in spite of scientific evidence to the contrary. The complainant in the instance before us writes: "Of course I know, everyone knows, that culture taking is productive of most beneficial results. It assists the diagnostician and safeguards the public at large. But should it not be applied with some reasonable discrimination? At present, in Cambridge at least, a person's liberty is placed in the discretion of one man, who is privileged to act in the most arbitrary manner and from whose decision there is no appeal. Who, after he has once played the monkey in a farce like this, will ever allow a physician to take another culture from his throat, or if he does get one will ever let him live to lug it away?"

Undoubtedly, if such cases as this were to be often repeated, they would lead to an evasion of the law, a difficulty with which boards of health always have to contend in greater or less degree. It is highly desirable that such evasion should be avoided; but we confess we have not forthwith a means to suggest, which will do justice, both to the individual and to society at large.

From the point of view of the Board of Health, we need hardly say that in the present state of our knowledge its action was absolutely justified. It acted as boards of health must always act, regardless of the individual, and with sole regard to the public at large. The solution of such a dilemma as this must ultimately lie in more knowledge of the virulence of the bacilli under varying condition, a subject upon which we are quite aware an enormous amount of work has already been done, but upon which still more remains to be accomplished. In the meantime, we must regret the occasional inconvenience to which the individual may be put, but not thereby neglect for a moment the large question at issue.

MEDICAL NOTES.

PRESIDENT OF JOHNS HOPKINS UNIVERSITY.— Prof. Ira C. Remsen has been elected president of Johns Hopkins University to succeed Mr. Gilman. He has been connected with that university as professor of chemistry since its foundation in 1876. He is 55 years of age and is a graduate of the College of Physicians and Surgeons of New York.

NORTH CAROLINA REFUSES A CHARTER TO A SO-CALLED SCIENCE COLLEGE.— It is reported that North Carolina, through its Secretary of State, has refused to charter a new college of science and mental healing, on the ground that its purposes conflict with the law governing the issuance of licenses to practise medicine.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 5, 1901, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: diphtheria 77, scarlatina 34, measles 273, typhoid fever 11, smallpox 1.

Precautions against Smallpox in Quincy, Mass.— The recent discovery of a case of smallpox in Quincy has led to the careful quarantining of several suspected houses. A cottage will be built on the almshouse grounds by the Board of Health for the accommodation of several families which are known to have been exposed.

NEW YORK.

The New Mount Sinai Hospital.— The corner-stone of the new Mount Sinai Hospital, which is to occupy the block between Fifth and Madison Avenues and 100th and 101st Streets, was laid on May 22d in the presence of over three thousand persons. It bears the inscription, "Mount Sinai Hospital, Beth Chauline, Incorporated 5612–1852." Addresses were made by Isaac Stern, chairman of the building committee, Randolph Guggenheimer, president of the Municipal Council, Seth Low, president of Columbia University, Isaac Wallach, president of Mount Sinai Hospital, Dr. Abraham Jacobi, president of the Medical Board, and Edward Lauterbach, Esq. In the course of his remarks Mr. Low said: "I count it not the least of the hospital's services that none is asked whether he be Jew or Gentile, Catholic or Protestant; it is enough that he is a man"; and Mr. Lauterbach made the statement that the records show that Mount Sinai has cared for more free patients, considering its size and capacity, with a higher record of medical and surgical service and ability, than any other hospital in the United States.

Modified Hippocratic Oath for Nurses.— The graduating exercises of the training-school for nurses at the City Hospital, Blackwell's Island, were held on June 1st. There were fifty-two graduates. On this occasion an innovation was made which met with hearty approval, and which will no doubt be adopted in other schools of the kind, in the administration of a modified Hippocratic oath to the class. It was administered by Mrs. Cadwalader Jones, chairmain of the Advisory Board, and two of its clauses were the following: "That you will be loyal to the physicians under whom you serve, as a good soldier is loyal to his officers." "That whatsoever you shall see or hear of the lives of men and women, whether they be your patients or members of their households, you will keep inviolably secret, whether you are in other households or among your own friends."

Payment of Life Insurance Premium while in Quarantine. — An interesting case regarding life insurance premiums and quarantine by the health authorities is reported from Geneva, N. Y. A female patient, who had been quarantined for about six weeks on account of smallpox, notified the board of health that her life insurance policy was likely to lapse because she was unable, on account of her enforced seclusion, to procure the money to keep it up, and demanded that the sum due should be paid by the board. President McGuire decided that the board had a right to pay and had better do so, on the ground that if the policy lapsed on account of the quarantine regulations and the woman died, the city might be called upon to make good the amount of the policy.

The Central Park Ostrich not Tuberculous.— The death of an ostrich in the Central Park menagerie, apparently from tuberculosis, has excited considerable attention, from the fact that it has always been maintained that birds are never subject to this disease. On this account Dr. Edwin Reynolds, chief physician to the Brooklyn Home for Consumptives, was asked to make an autopsy. He reports that death was due, not to tuberculosis, but to abscess and inflammation of the left lung, caused by the lodgment of a kernel of corn in one of the bronchial tubes. Not a single tubercle baccillus was found in the lungs; but in order to test the matter finally, Dr. Reynolds proposes to inoculate healthy guinea pigs with serum from the diseased organ.

Difficulties of the Kneipp Cure.— It is somewhat hazardous to carry out the Kneipp cure in the vicinity of Fishkill, N. Y. Recently an invalid who, it seems, had received a course of instruction at a Kneipp establishment at Poughkeepsie, was seen walking along the roadside without shoes or stockings, and as it was supposed on this account that he was a patient escaped from the neighboring State Hospital for Insane Criminals at Matteawan, he was, notwithstanding his protests, arrested and subjected to considerable inconvenience before he succeeded in convincing the authorities of the mistake that had been made. It appears that there is a standing reward of $25 in the community for the capture of any inmate of the institution who escapes.

Twelve Thousand Dollars for the Brooklyn Home for Consumptives.— A decision has been handed down by Surrogate Abbott, in Brooklyn, admitting to probate the will of Miss Maria Sprague Meeker, which left her residuary estate, amounting to about $12,000 to the Hospital for Breadwinners, provided the latter was incorporated at the time of her death. If it was not incorporated at this time the money was to go to the Brooklyn Home for Consumptives. The Hospital for Breadwinners was not incorporated at the time of the death of the testatrix, and

the Surrogate decides that the residuary estate goes to the Home for Consumptives. The will was contested by two nieces of the deceased.

DEDICATION OF BUILDINGS AT THE LOOMIS SANITARIUM.— The Church of St. Luke the Beloved Physician, a beautiful chapel at the Loomis Sanitarium for Consumptives at Liberty, N. Y., erected by Mrs. Alfred L. Loomis in memory of her husband, was dedicated on May 27th by Bishop Potter. Other buildings at the sanitarium dedicated on the same day were: The new administration building, the gift of J. Pierpont Morgan; a handsome library, the gift of Mrs. James H. Aldrich, in memory of her father, Mr. Edson; and an annex for the accommodation of charity patients. The graduating exercises of the 1901 class of trained nurses was also a feature of the occasion.

ANOTHER SANITARIUM FOR TUBERCULOSIS.— The new buildings of the Country Sanitarium for Consumptives, a special department of the Montefiore Hospital for Chronic Diseases, situated near Bedford, Westchester County, were formally opened on Memorial Day with addresses by Bishop Potter, Vice President Roosevelt, Jacob H. Schiff, president of the Montefiore Hospital, Oscar S. Strauss, lately U. S. Minister to Turkey, Dr. Alfred Meyer, physician-in-chief of the sanitarium, and others. The buildings now completed will accommodate 150 patients, and it is proposed to enlarge them to a capacity of at least 500.

CONSECRATION OF A CONVALESCENT HOME.— On May 27th Archbishop Corrigan consecrated the Convalescents' Home at Tuckahoe, Westchester County, N. Y., a commodious building with ample grounds, presented by Adrian Iselin and his daughter. It is designed as a place of recuperation for patients discharged from the New York hospitals.

SMALLPOX IN BELLEVUE HOSPITAL.— It is reported that within ten days no less than twelve persons suffering from smallpox have presented themselves at the outdoor department of Bellevue Hospital.

Miscellany.

THE BLESSINGS OF CHARITY.

WE have received the following appeal addressed to a confrère in a neighboring city, which is worthy of reproduction:

DEAR SIR:

The liberty & equality of this country, where it is no diversity bettween creed & nationality, are encouraging me to write the following lines: my bad state is indescribable, but very easy to imagine my position; when my small earned wages must be spent for Dr. & medecine. and nothing can be left to satisfy the stomachs of my poor four children. To send this patient to hospital is impossible, firstly she cannot be seperated from the children, secondly I have nobody to take care of them when she ll be in hospital. Therefor by the name of humanity, the divine faculty, I request you to send a Dr to my place if possible as it is done in some other cities. By doing the above you will save the life of four children who are suffering limitless.

Your obedient servant,

Following the above, the benevolent physician received this message:

Discerning your charitable carre by visiting my humble house where a poor helpless woman is confined to her cot, with poor four children, whose only hope is only in you, I encourage myself to ask your honor to call today as she feels worse.

Your humble servant,

Obituary.

ALLEN M. SUMNER, M.D.

DR. ALLEN M. SUMNER died at his home in Boston May 25th, at the age of fifty-seven years. He was born January 31, 1844, and had been a resident of Boston most of his life. Receiving his early education in the public schools, Dr. Sumner entered the Lawrence Scientific School, Cambridge, where he received the degree of S.B.; later he received the degree of M.D. from the Harvard Medical School. He then studied for several years in London, Paris and Vienna. Returning to America he entered upon the practice of medicine in Boston, where he continued to reside up to the time of his death. He was for many years a visiting physician at the City Hospital, a position from which he resigned about three years ago. For twenty-nine years he was connected with St. Luke's Home for Convalescents, and at the time of his death was senior physician on the consulting staff. He was a conscientious and skilful practitioner and a physician of wide experience, which his long service at the City Hospital did much to foster and increase. A wife and two children survive him.

RESOLUTION ON THE DEATH OF DR. SUMNER.

Resolved, That in the death of Dr. Allen M. Sumner on May 25, 1901, St. Luke's Home for Convalescents lost a faithful adviser and a loyal friend. His services covered a period of twenty-nine years: from 1872 to 1878 on the active staff, and from 1878 to 1901 on the consulting staff, the last seven years he being the senior physician of the Home. Dr. Sumner was always ready with timely counsel and practical assistance to further the welfare of the patients, and his careful attention to the duties of his office served to enlist the regard and respect of those associated with him in the work of St. Luke's Home for Convalescents, Boston.

Resolved, That the Trustees and Medical Staff extend to the family their sincere sympathy in their very great affliction.

WALLACE H. HAM, *Secretary*.

GEORGE S. OSBORNE, M.D.

DR. GEORGE STERNE OSBORNE of Salem, Mass., died at his home, May 25th, at the age of 62, of heart failure. He was educated in the Salem schools, and was fitted there for Harvard, which he entered in 1856. He did not complete the four years' course, but in 1859 entered the Harvard Medical School, from which he graduated. On July 8, 1862, he enlisted in the First Massachusetts Cavalry, and became assistant surgeon, with the rank of lieutenant, March 17, 1863. On December 30, 1863, he was promoted to major and made surgeon of the Fifth Massachusetts Cavalry, but

resigned May 7, 1864, on account of illness. He returned to the service later. He spent the next two years studying in Vienna and Paris. On returning to this country from this period of study he began practice in Peabody. He continued until 1894, building up a large and successful practice.

He was a member of various social and professional organizations, and a man who greatly endeared himself, both professionally and socially, to a wide circle.

Correspondence.

DISGRACEFUL AND ANNOYING MEDICAL ADVERTISEMENTS IN CURRENT MAGAZINES AND NEWSPAPERS.

NEW HAVEN, CONN., May 18, 1901.

MR. EDITOR: — With all our medical practice acts and efforts at pure medical journalism, it seems strange that no tether can be placed upon the quack rampant on the field of magazine and newspaper advertising pages. These gentlemen assure you that all kinds of diseases "can be cured while you wait, consultation free." "Let us send you a bottle." "Keep your hats on, gentlemen; it will all be over in a minute." Trash of this nature obstructs our view in current periodicals. One distinguished gentleman assures the public that he abolishes varicocele and appends his beautiful physiognomy posed for the occasion in half-tone, with a page of vituperated slush about what he knows he cannot do. "Ideal sight." "Are you deaf? Put the electric battery in a foot-tub (or anything convenient) and watch it," with a lucid illustration of an impossibility. Blood cures, body braces, hair on your face, crowd upon one another with the energy of horses at the race-track.

These vacuous fellows keep up a "continuous performance" and increase yearly in our best periodicals, and we either can not, will not, or dare not, try to stop it. The medical profession can say, with truth, that quackery is beneath its contempt. This is true; but the fact remains, that these magazines fall into the hands of innocent young people. Curiosity, a human trait, is awakened.

Then questions will be asked about matters that they have no business even to hear of, least of all to mention. "Money talks." Vulgar as this expression may be, it is the root of all this blatant trash hurled in our faces daily by the squawking quack.

If some form of legislation could be enacted to curtail these gentlemen "who will let you try it for yourself," we might have less of their warblings, if not, in time, total extinction of the nuisance.

Very truly yours,

G. TOTTEN-MCMASTER, M.D.

SUBSCRIPTIONS FOR MONUMENT TO PROFESSOR OLLIER.

1729 CHESTNUT STREET, PHILADELPHIA,
June 3, 1901.

MR. EDITOR: —Some time since you kindly published an appeal of a committee soliciting subscriptions for a monument to the late Professor Ollier in Lyons. As treasurer of the committee, I beg that you will publish this letter in your journal in order to inform the profession that I have received the sum of $649 from 103 subscribers. I have forwarded the same, less $4.60 for postage, printing, etc., to Dr. G. Mondan, 27 Rue Jarente, Lyons, France.

Yours very truly,

W. W. KEEN, M.D., *Chairman.*

METEOROLOGICAL RECORD.

For the week ending May 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer: Daily mean.	Thermometer: Daily mean.	Thermometer: Maximum.	Thermometer: Minimum.	Relative humidity: 8.00 A.M.	Relative humidity: 8.00 P.M.	Relative humidity: Daily mean.	Direction of wind: 8.00 A.M.	Direction of wind: 8.00 P.M.	Velocity of wind: 8.00 A.M.	Velocity of wind: 8.00 P.M.	We'th'r *: 8.00 A.M.	We'th'r *: 8.00 P.M.	Rainfall in inches.
S...19	29.92	47	48	46	100	98	99	N E	N E	15	24	R.	R.	145
M..20	30.08	45	46	44	100	96	98	N E	N E	20	14	R.	O.	.72
T...21	30.07	52	60	45	87	84	86	N W	S E	7	5	O.	F.	.0
W..22	29.95	70	84	57	69	76	72	W	S W	5	14	F.	F.	.0
T...23	29.72	70	81	59	83	60	72	W	W	15	13	F.	C.	.97
F ..24	29.97	61	75	47	68	96	82	W	N E	3	20	F.	R.	.40
S...25	30.19	48	50	46	98	88	93	N E	E	22	8	R.	O.	.36
☞	29.99		63	49			86							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 25, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York	3,437,202	1,208	373	26.65	14.90	2.65	3.14	3.31
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	421	112	21.85	11.64	1.42	.24	1.90
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	181	50	24.86	12.15	.55	3.31	3.86
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	—	—	—	—	—	—	—
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	54	10	14.80	11.10	—	1.85	5.55
Boston	560,892	213	54	25.35	13.15	.46	3.29	4.69
Worcester	118,421	23	7	13.05	8.70	—	—	—
Fall River	104,863	31	15	28.00	9.68	—	12.90	—
Lowell	94,969	49	13	22.44	12.25	—	—	6.12
Cambridge	91,886	21	6	33.33	4.76	—	—	—
Lynn	68,513	11	—	18.18	—	9.09	—	—
Lawrence	62,559	21	8	4.76	9.52	—	4.76	—
New Bedford	62,442	20	2	5.00	—	—	—	—
Springfield	62,059	12	2	16.67	—	—	—	—
Somerville	61,643	13	2	61.53	7.70	—	7.70	7.70
Holyoke	45,712	13	9	15.40	7.70	—	—	—
Brockton	40,063	12	3	33.33	—	8.33	—	8.33
Haverhill	37,175	11	4	18.18	9.09	—	—	—
Salem	35,956	7	4	—	—	—	—	—
Chelsea	34,072	9	1	44.44	—	—	—	11.11
Malden	33,664	4	2	—	25.00	—	—	—
Newton	33,587	7	—	14.30	—	14.30	—	—
Fitchburg	31,531	—	—	—	—	—	—	—
Taunton	31,036	10	1	10.00	20.00	—	—	—
Gloucester	26,121	5	—	16.67	—	—	—	—
Everett	24,336	—	—	—	—	—	—	—
North Adams	24,200	8	2	—	50.00	—	—	—
Quincy	23,899	5	—	40.00	20.00	—	—	—
Waltham	23,481	13	4	38.50	15.40	—	—	—
Pittsfield	21,766	4	—	25.00	25.00	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chicopee	19,167	4	2	—	—	—	—	—
Medford	18,244	8	3	25.00	25.00	—	25.00	—
Newburyport	14,478	—	—	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,420; under five years of age 691; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 594, acute lung diseases 313, consumption 318, scarlet fever 45, influenza 3, erysipelas 10, typhoid fever 20, whooping cough 21, measles 16, cerebro-spinal meningitis 11, smallpox 13.

From whooping cough, New York 7, Philadelphia 9, Baltimore 2, Boston 1, Cambridge 2. From cerebro-spinal

meningitis. New York 4, Philadelphia 2, Baltimore 1, Boston 3, Pittsfield 1. From scarlet fever, New York 32, Philadelphia 6, Baltimore 1, Boston 1, Worcester 2, Lynn, Brockton and Newton 1 each. From typhoid fever, New York 5, Philadelphia 9, Baltimore 2, Boston, Lowell, Taunton and Waltham 1 each. From erysipelas, New York 7, Philadelphia 1, Boston 2. From smallpox, New York 13.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending May 11th, the death rate was 16.5. Deaths reported, 3,635: acute diseases of the respiratory organs (London), 237, whooping cough 118, diphtheria 63, measles 90, fever 25, scarlet fever 38.

The death rate ranged from 7.7, in Croydon, to 22.3, in Brighton; Birkenhead 12.7, Birmingham 18.9, Blackburn 17.1, Bolton 15.8, Bradford 17.3, Bristol 17.4, Burnley 13.9, Cardiff 14.2, Derby 15.2, Gateshead 13.2, Halifax 15.9, Huddersfield 14.3, Hull 19.5, Leeds 16.1, Leicester 14.2, Liverpool 18.5, London 15.9, Manchester 20.7, Newcastle-on-Tyne 17.2, Norwich 17.2, Nottingham 15.6, Oldham 18.6, Plymouth 11.6, Portsmouth 17.0, Preston 14.3, Salford 18.4, Sheffield 16.5, Sunderland 16.6, Swansea 20.4, West Ham 14.9, Wolverhampton 16.0.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDING MAY 25, 1901.

R. M. KENNEDY, passed assistant surgeon. Ordered home via public conveyance.

M. V. STONE, assistant surgeon. Detached from "Buffalo" and ordered home to wait orders.

C. H. DELANCY, assistant surgeon. Detached from "Bancroft" and ordered to the "Buffalo."

F. M. FURLONG, assistant surgeon. Ordered home via public conveyance.

D. B. KERR, assistant surgeon. Ordered home via public conveyance.

E. J. GROW, assistant surgeon. Ordered home via public conveyance.

A. G. GRUNWELL, assistant surgeon. Ordered home via public conveyance.

D. G. BEEBE, assistant surgeon. Ordered home via public conveyance.

C. D. LANGHORNE, assistant surgeon. Ordered home via public conveyance.

J. STEPP, assistant surgeon. Detached from the "Castine" and ordered to the "Isla de Luzon."

E. J. GROW, assistant surgeon. Detached from the "Isla de Luzon" and ordered to the "Castine."

E. THOMPSON, assistant surgeon. Detached from the "Solace" and ordered to the "Petrel."

R. W. PLUMMER, assistant surgeon. Detached from the "Petrel" and ordered to the "Nashville."

F. M. Furlong, assistant surgeon. Ordered detached from the "Brutus," and ordering him forward to Guam, L. I.

RECENT DEATHS.

DR. JOHN E. COMFORT, a prominent physician in the Borough of the Bronx, New York, died on May 29th. He was born in St. Louis, Mo., October 6, 1837, and was graduated from the Albany Medical College in 1864. During the latter part of the Civil War he served as assistant surgeon of the Sixtieth Regiment New York Volunteers. Ever since the war he had practiced in that portion of Westchester County which a number of years ago was annexed to the City of New York and is now known as the Bronx, and for twelve years he was an inspector of the New York Board of Health.

DR. JOHN L. FEENY, Sanitary Superintendent of the Borough of Richmond, New York, died after an extended illness, at his home at Stapleton, Staten Island, on May 31st. He was born in 1845 and was graduated from the Medical Department of the University of the City of New York in 1866. After serving for three years as house physician at the Seaman's Retreat Hospital, on Staten Island, he commenced private practice at Stapleton. From 1870 until the recent consolidation of the Boroughs composing the Greater City of New York, he was surgeon to the police department of Richmond County, and during the greater part of this time was also health officer of the towns of Edgewater and Middletown.

BOOKS AND PAMPHLETS RECEIVED.

Eighteenth Report of the State Board of Health of Wisconsin, September 30, 1900. Madison, Wis., 1901.

Metropolitan Water Board. Sixth Annual Report. January 1, 1901. Boston: Wright & Potter Printing Co. 1901.

Klinische Versuche mit dem Fleischsafte "Puro." Von Dr. Jos. Vesely, Assistent. Sonder-Abdruck aus der Prager Med. Wochenschrift. 1901.

Syphilis as a Non-Venereal Disease. With a Plea for the Legal Control of Syphilis. By L. Duncan Bulkley, A.M., M.D., New York City. Reprint. 1901.

Circular on Tropical Diseases. Number I. Chief Surgeon's Office, Headquarters Division of the Philippines, Manila, P. I. Reprint. 1901.

Bulletin de l'académie Royale de Médecine de Belgique. Bruxelles: Hayez, Imprimeur de l'académie royale de médecine de belgique, Rue de Louvain, 112. 1901.

Proceedings of the Philadelphia County Medical Society. Report and Exhibition of a Case of Dermographism. By Jay F. Schamberg, M.D. Vol. XXII. Reprint. 1901.

The Extra Pharmacopœia. By William Martindale, F.L.S., F.C.S., and W. Wynn Westcott, M.B. (Lond.) D.P.H. Tenth edition. London: H. K. Lewis. 1901.

A Treatise on the General Principles and Special Applications of Hematology. By James Ewing, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

How to Cook for the Sick and Convalescent. Arranged for the Physician, Trained Nurse and Home Use. By Helena V. Sachse. Philadelphia: J. B. Lippincott Company. 1901.

Transactions of the Twenty-second Annual Meeting of the American Laryngological Association. Held in the City of Washington, D. C., May 1, 2 and 3, 1900. New York: Carey Printing Co. 1901.

A Manual of Diseases of the Nose and Throat. By Cornelius Godfrey Coakley, A.M., M.D. Second edition revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Transactions of the Obstetrical Society of London. Vol. XLIII, for the Year 1901. Edited by Herbert R. Spencer, M.D., Senior Secretary, and Alban Doran, F.R.C.S. Illustrated. Published by the Society.

An Inquiry into the Existence of Autochthonous Malaria in Buffalo and its Environs. Preliminary Report on Species of Mosquitoes and Blood Examinations. With map. By Irving P. Lyon, M.D., and Alfred B. Wright, Buffalo, N. Y. Reprint. 1900.

Induction Coils. How to Make, Use and Repair Them. Including Ruhmkorff, Tesla and Medical Coils, Röentgen, Radiography, etc. By H. S. Norris (Norman H. Schneider). Second edition, revised and enlarged. New York and London: Spon & Chamberlain. 1901.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Sixth and revised edition. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Primary Echinococcus Cysts of the Pleura. Report of a Case of Primary Exogenous Echinococcus Cysts of the Pleura, Showing Hyaline Degeneration of the Cuticle without Lamellation, with Notes from the Literature. By Charles Cary, M.D., and Irving P. Lyon, M.D., Buffalo, N. Y. Reprint. 1900.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. II. Electrotherapy by George W. Jacoby, M.D. In two books. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The Occurrence of Malta Fever in Manila. By Richard P. Strong, M.D., Assistant Surgeon U. S. A., Director of the Army Medical Laboratory, Manila, and President of the Board appointed by the Secretary of War for the Investigation of Tropical Diseases in the Philippine Islands; and W. E. Musgrave, Hospital Steward U. S. A., Resident Pathologist to the First Reserve Hospital. Reprint. 1900.

Coincident Typhoid and Malarial Infection. Report of a Case and Review of the Literature, with a Discussion of the So-Called Typhomalarial Fever. By Irving Phillips Lyon, M.D. (Johns Hopkins), Buffalo, N. Y., Former House Medical Officer, Johns Hopkins Hospital, Baltimore; Clinical Pathologist to the New York State Pathological Laboratory of the University of Buffalo; Instructor of Clinical Medicine in the University of Buffalo. With charts. Reprint. 1900.

Address.

INTERNAL MEDICINE IN THE NINETEENTH CENTURY.[1]

BY N. S. DAVIS, JR., M.D., CHICAGO.

It is one of the duties of those who address you, as I do today, to review what has been newly discovered in the field of medicine or in some limited department of it. At this first meeting of the American Medical Association in the twentieth century, it seems most natural to review what has been accomplished in the last one hundred years. The time at my disposal is too brief to read to you a complete history of the achievements of this wonderful epoch, for more of genuine advancement has been made in medicine during it than during all the preceding centuries together. It is only possible for me to point out some of the reasons for the rapid development of medicine, to recall to your minds some of the most important discoveries and applications of them.

A century is not so long a time as we are apt to think. Our grandfathers were vigorous men, in the prime of life, when the nineteenth century was born. Yet changes so great that they seem miraculous have occurred since then. In 1800 this great country was a wilderness, unknown even to the inhabitants of the few straggling settlements upon the Atlantic coast. Our land contained no great cities. There was little travel from place to place. There were no steamboats nor railways; no telegraphs nor telephones. Information traveled slowly by packet ship, canal boat and stage coach. The discovery of the wonderful properties of the x-ray could not then have been flashed over the world in a day, and its genuineness and utility confirmed within a few weeks by experiments made simultaneously in all parts of the world, as did happen at the close of the century. Today all civilized peoples are so united that knowledge has become the common property of them all. In former epochs geniuses delved alone, inspired only by their own enthusiasm. Often it was many years before their discoveries became widely known or appreciated; and many more before another genius standing upon land already found ventured upon its exploration.

All this has been changed. Learning is not possessed by a few, but by many. In earlier epochs men of genius towered above their contemporaries in learning. Today thousands crowd about their shoulders, so much higher is the average of learning. All scientific workers are now linked together by the rapid dissemination of news, so that no matter in what part of the world they may be, they are kept conversant with what is being thought and done in every other part, and they are thereby inspired to greater mental efforts.

Knowledge is no longer isolated. It is cultivated in centers too numerous to count. Even in this new land universities with great libraries, finely-equipped laboratories, and corps of brilliant teachers and seekers after new knowledge, are found in every part of it. Medical societies have been organized in every state and city, and in many counties and towns. But at the beginning of the century there were only four medical schools in this country, and four state societies, organized for the advancement of medical knowledge.[2]

These changes have been effected chiefly by the rapidity of communication which has been established in all civilized lands and by the greater concentration of the people in large cities.

But it is not in the United States only that the population has increased and concentrated. In 1801 the total population of England and Wales was less than 9,000,000. Of this number more than half lived in the country. At the end of the nineteenth century the population of the same countries was more than 29,000,000, and only one-fifth of this number lived in rural districts. These figures attract our attention to the social changes which have occurred in all civilized lands — changes which have effected not only a greater diffusion of knowledge, but have also modified the conditions which produce and limit disease.

At the opening of the nineteenth century "Cullen's Practice of Physic," written late in the preceding century, was the standard text-book. A glance at its contents will give us the clearest conception of the state of medical knowledge at that time. In an edition of this work printed in New York City in 1806 I find no description of structural diseases of the heart; even as a complication of rheumatism, heart disease is not mentioned. A single page is devoted to nephritis, but in its description there is no mention of the chemic and microscopic changes in the urine, upon which we depend to recognize it and to distinguish its forms. The affections of the respiratory organs were described with similar crudeness, under such chapter headings as "Of Catarrh," "Asthma," "Pneumonic Inflammation," "Peripneumonia Notha," and "Phthisis Pulmonalis," but the catarrhal inflammations of the nose, pharynx, trachea and bronchi were not differentiated from one another, nor were catarrhal and croupous pneumonia, brown induration, hypostatic congestion and edema of the lungs described.

The hypothetical explanation of diseases and their causes which prevailed at that time is well illustrated by the conclusion reached by Noah Webster, who in his "History of Epidemics and Pestilential Diseases" writes that typhus and nervous fever are due to "conversion of the perspirable fluids of the body into septic matter."

Nothing will help so much to make clear the progress made in medicine in the last century as to compare the resources at the disposal of physicians of our day with those commanded by our grandparents. At the opening of the nineteenth century medical men knew nothing of the clinical

[1] Annual oration in medicine, delivered at the fifty-second annual meeting of the American Medical Association, held at St. Paul, Minn., June 4-7, 1901.

[2] The colleges were medical departments of Pennsylvania, Columbia, Harvard and Dartmouth (founded 1797). The societies were New Jersey (1766), Massachusetts (1781), Connecticut and New Hampshire (1791).

thermometer, of percussion, auscultation, uranalysis, clinical microscopy, laryngoscopy, ophthalmoscopy, of the sphygmograph, or Röntgen rays.

It was not until the year 1808 that Corvisart spread widely a knowledge of percussion as a means of discovering the physical status of the viscera, although the work of Avenbrugger which he translated, and which was the original description of percussion, had been published nearly fifty years before. The work of Avenbrugger and Corvisart was supplemented in 1819, when Laennec published the result of his labor with the stethoscope which he invented four years earlier. From this time dates our clinical knowledge of diseases of the lungs and heart.

In 1827 Bright pointed out the relationship of albuminuria, dropsy and diseases of the kidneys. At this point clinical chemistry may be said to begin.

At the beginning of the nineteenth century compound microscopes were almost usless, for the images which their lenses made were so distorted and colored that they could not be properly interpreted. In 1812 Dr. William Hyde Wolleston combined two plano-convex lenses so as to correct the spherical aberration which a single double-convex lens produces; and nearly twenty years later Joseph Jackson Lister discovered the utility of combining lenses of crown and flint glass in order to produce an image in the microscope relatively free from distortions and fringes of color. The more recent invention of the oil immersion lens has made bacteriology possible, and has solved many of the problems of infectious diseases which puzzled even our fathers in the fifties and sixties.

The dependence of medicine upon ancillary sciences is well illustrated by the sudden birth and rapid development of new branches of medical knowledge which are dependent on the perfection of the microscope.

This instrument has made histology, embryology, modern pathology and bacteriology a possibility. These departments of science are altogether products of the last century.

It was at the beginning of the century that Bichot divided the structures of the body into what he called "tissues," and showed that there were only a few of them. It is surprising that the great anatomists before him did not make the same discovery.

As modern anatomy has been dependent upon the microscope in order to explain structures, so physiology has been dependent upon experiments on living animals to explain function. It is true that in earlier epochs at considerable intervals of time experiments upon living animals were made, notably by Harvey when he studied the circulation of the blood, but they were never made systematically until the discovery of anesthesia in the nineteenth century made them painless. No wonder, therefore, that the explanations made by physiologists in 1800 seem to us extremely crude. Haller, for instance, whose printed lectures formed the text-book of most students at that time, thus describes the nature of blood: "Hydrostatical experiments demonstrate in the blood first a kind of volatile vapor or exhalation which immediately and continually flies off from the warm juice with a sort of fetid odor coming betwixt that of sweat and urine. This vapor being catched and condensed in proper vessels, appears of a watery nature, joined with a small tincture of an alkaline disposition."

A few pages further on what he says of the blood gives us an idea both of the state of physiologic and pathologic knowledge at that time: "For the blood in a sound, healthy state, not injured by putrefaction or too violent a degree of heat, is neither alkaline nor acid, but mild and gelatinous, and a little saltish to the taste; yet in some diseases it is sharp enough and comes near to a state of putrefaction; as for instance in the scurvy, when it corrodes through its containing vessels, and in those who have ascites or dropsy whose waters are often much of an alkaline and corroding nature."

At the close of the eighteenth century the part which gland cells play in forming secretions was not comprehended. It was believed that "the albuminous or hardening juices are separated almost anywhere from the arteries themselves, into continuous excretory canals, with any intermediate organ or machine betwixt them." It was believed that all excretions existed primarily in the blood.

The physiologists of this period appreciated the importance of the lungs and the act of respiration, but their exact use they did not comprehend. Haller enumerates several possible functions which they might perform, yet he did not feel sure that any one of them were the real ones. For instance, he says: "Our blood acquires its heat principally in the lungs; for that all animals which have lungs and two ventricles in the heart have the heat of their blood commonly twice that of the atmosphere. But does not this arise from the alternate extension and contraction, relaxation and compression of the pulmonary vessels by which the solid parts of the blood are perpetually rubbed together and closely compressed in the attrition that is made during expiration, as it is more rapidly moved and ground together during inspiration."

Our forefathers one hundred years ago often endeavored to hide their ignorance in long names and resounding phrases,—a common practice, indeed, in all times and not wanting today; for how much ignorance will our successors find hidden in words now so commonly used as are metabolism and autointoxication.

Pathology as a distinct department of scientific medicine originated in the nineteenth century. It was not until 1860 that Rudolf Virchow demonstrated conclusively his famous dictum: "*Omnis cellula e cellula.*" His studies of cells in disease laid the foundation and did much to rear the superstructure of cellular pathology. So rapidly has a knowledge of this subject grown that we can unhesitatingly say that we now possess very accurate and detailed information as to the anatomical

changes which disease effects. The insight of physicians was so greatly extended into the nature of morbid processes by these pathologic studies that enthusiastic devotees of them felt that the application of the microscope to the study of disease would dispel its mysteries. Increasing information, however, soon demonstrated the limitations which exist as to knowledge derivable from a study of morbid anatomy. Most of us remember how, soon after the birth of bacteriology, it was also hoped that from it at least we would learn the true essence of disease. But we know now that in most ailments after the bacteriologist has discovered the offending micro-organism the chemist must help us, for it is usually a product of its growth, not its physical presence in the tissues, that causes disease.

The production of disease by parasites imbedded in the tissues of the human body was suspected from early times, but was not demonstrated until the end of the first third of the nineteenth century, when James Paget, then a medical student, found unusual nodules in the muscles of a man whom he was dissecting. These Richard Owen demonstrated to be the cocoon of a minute animal which he called *trichina spiralis*. In 1847 Dr. Joseph Leidy of Philadelphia found them also in pork, and soon thereafter it was shown in Germany that men could become infected by eating pork containing trichina, and that in consequence there developed in them a definite train of symptoms.

In 1837 Latour in France and Schwann in Germany almost simultaneously propounded the view that fermentation and putrefaction are due to the growth of micro-organisms. Liebig, with all the weight of his authority, antagonized this belief in a "vitalistic" explanation of these phenomena. Pasteur undertook to settle the dispute by methods of research, which proved to be the foundation of a new department of science — bacteriology. The results of his experiments were published between 1857 and 1869. He proved that without micro-organisms there could be no fermentation, no putrefaction or decay. These studies prompted many investigators to attempt to demonstrate the suspected relationship of micro-organisms to disease. In 1863 Devaine succeeded in showing that the organisms seen by him in 1850 in the blood of animals which had died of anthrax, were its cause. This, as some of those before me will remember, aroused a storm of controversy which was not settled finally until after my own student days.

Formerly, such vague terms as "miasm," "humor" and "virus" were used to explain the communicability of contagious diseases, but they have had to be discarded or to be newly defined by the bacteriologist. It was in the sixties that Lister made his studies upon the relationship of micro-organisms to wound infection. The brilliant revolutionary results of those studies are too well known to you to require elaboration; besides they belong to the history of the nineteenth-century surgery rather than to the history of internal medicine. They were, however, so important in settling the relationship of invisible parasites and diseases that they must be mentioned.

It was at this time, too, that Pasteur and Tyndall finally settled the controversy over spontaneous generation, which had raged from time immemorial. The world at last felt convinced that even micro-organisms could not exist where an antecedent organism had not been.

It is needless to recapitulate the long list of discoveries rapidly made from this time onward of the causes of infectious diseases, by such men as Koch, Klebs, Loeffler, Fraenkel, Laveran, and many others.

Although medical men have been incited to search for the causes of disease in order that they might understand their nature better and therefore be able to treat them better, such studies naturally led more directly to the prevention than to the cure of disease. That is why the recent epoch-making bacteriological discoveries have greatly stimulated the study of preventive medicine. It is true that the prevention of disease has engaged the attention of medical men and statesmen since the earliest times, but the subject was not studied systematically before the last century.

Hygiene as a separate department of medicine, with a literature of its own, was created only in the nineteenth century.

While in the eighteenth century much was done to improve the hygienic state of individuals, and as a result there began before its close to be a reduction in the mortality rate, which has continued up to the present time, public hygiene or attempts to prevent the spread of disease by state and civic interference, was not fairly established until very recently. Even today small communities have no health officers or sanitary inspectors, and few regulations which are intended either to inform the people as to the relative healthfulness of towns and hamlets, or by which the spread of disease is to be lessened. These facts show how new and undeveloped as yet the field of public hygiene is. The mortality statistics which have been gathered in cities since the middle of the last century make it possible to point out which among them are the healthiest, and which diseases are the most destructive. It is to be hoped that these statistics in the future will be supplemented by reports of the kinds and amount of illness, whether fatal or not, that may exist in a given place.

The knowledge recently acquired of infections and their spread has already been applied to their prevention. Such diseases as erysipelas, septicemia and tetanus no longer torment surgeons when they can make clean wounds. But as late as 1870 the first of these ailments was common in the hospitals of France. Puerperal fever is today as rare as it was common formerly. Typhus fever no longer exists in America, although not uncommon at the beginning of the last century.[3]

[3] Typhus forms an item in the mortality reports of Chicago (and other American cities) as late as 1886. This is probably because it was confused with typhoid. Not during the first quarter and rarely afterwards genuine typhus occurred in this country.

Indeed, it is rarely seen in any civilized country today. At the beginning of the nineteenth century smallpox was so common that few persons reached adult life without having had the disease, and the mortality from it in childhood was great. What is the status of this disease today? I venture to say there are many physicians in this audience who have never seen a case, and that a majority of them have not treated more than four or five cases during their whole professional experience. In the early days of this nation's history yellow fever spread to Philadelphia and New York, and provoked much discussion, for it was feared that it would prove as great a pest as cholera. A careful study of the disease and a consideration of the possibility of preventing it was referred to a committee of the New York Medical Society, which reported that yellow fever may be produced in any country by pestilential effluvia. How different is this conclusion from that of recent students of the subject, who assign to it a specific cause, which is transmitted from man to man by mosquitoes, who are its host.

Cholera has been brought to our shores several times in the last few years, but its spread has been prevented in each case. In Europe it has also been limited to comparatively small areas. Within a year the plague has been found in this country, in Great Britain and France, but has caused little alarm, so great is the confidence that it will be successfully suppressed. (Let us hope that this confidence is not misplaced.)

What has been accomplished during the last one hundred years by internal medicine the following statistics will show in part, although it must be remembered that mortality statistics gathered before the middle of the century are not reliable. It is estimated that in 1805 in New York City from 35 to 40 deaths occurred in every 1,000 inhabitants. During the last decade it has averaged 20 in 1,000, and has been as low as 19 in 1,000. In 1847 the mortality in London from zomotic diseases was 23.26%; during the last two decades 19% to 20%. In 1846 the deaths from consumption were 12.67%; now approximately 9%. The mortality from diseases of the respiratory organs has been reduced in the same time from more than 12% to about 7%, and the mortality from diseases of the digestive organs has diminished from about 6% to less than 5%. In Chicago the mortality rate has fallen, with small fluctuations, from 46 and 64 deaths per 1,000 inhabitants in the cholera years of 1852 and 1854, to 14 in 1898. The following diseases are among those in which the death-rate has fallen progressively: Cholera infantum, croup, diarrhea, diphtheria, dysentery, malaria, measles, scarlet fever and whooping cough. These are ailments the spread of which has been controlled either by isolation or by insuring the people purer food and water. Although the general mortality of Chicago, which is typical of the great cities of civilized countries, has improved, there are some diseases which are increasing in prevalence, notably nervous diseases, heart diseases, cancer, Bright's disease, bronchitis and pneumonia. To the discredit of my native city must it be said that the mortality from typhoid fever reached its highest point at the close of the century, during 1890, 1891 and 1892, although its cause and its mode of dissemination, as well as its prevention, were well known.

The general lowering of the death rate is due to the improved hygiene of communities. In what the improvement has consisted is best shown by recalling some of the conditions under which people lived in 1800. At that time few cities had an adequate public water supply. In London water could be delivered at any house three times a week by one of the water companies; but most households depended upon wells. The sewerage system was quite as imperfect. Outhouses and cesspools were attached to each dwelling. The conveyance of sewage from houses by water did not become general until well into the last century. Ventilation of buildings, and especially of public halls, had attracted attention before the nineteenth century; but the real causes of danger from bad ventilation were not appreciated until bacteriology disclosed them.

In 1800 streets were not paved, and rarely cleaned. The habits of the people as regards eating and drinking were bestial. Excessively large quantities of food were consumed by all who could provide it. Alcoholic beverages were universally drunk, and generally in immoderate quantities. No disgrace attached to drunkenness; and it was customary for a man to drink several bottles of wine at a sitting.

Those who compose this audience appreciate how much illness must have been caused by these habits, and how much the relative abstemiousness or temperance of today has lessened the percentage of disease.

Prevention of diseases is only possible when a knowledge of their causes, their mode of dissemination, and methods for their suppression is possessed by all the people. Medical men alone cannot stop their spread, nor will the making of laws do it. Only the intelligent co-operation of those who are ill and those who are well can accomplish it. It must not be expected, therefore, that as soon as the cause of a disease is discovered, that ailment can be suppressed. Time is required in which to educate all classes of people on that particular subject. Unfortunately, many persons are so obtuse that they will not believe in methods of prevention, even when the fullest demonstration of their success has been made. A notable instance of this is seen in the recent repeal of laws in England which made vaccination compulsory. The ease with which drinking water may become contaminated, and the danger to health from contamination, is not even now appreciated by the public. It is partly because such thorough knowledge is needed by the laymen that tuberculosis, diphtheria, pneumonia, typhoid fever and similar troubles have not been better controlled in the past. In order that in the twentieth century the fruits of the great discoveries of the last may be

gathered, all members of the medical profession must fit themselves to teach their patients what is known of disease and its prevention. Those who are especially adapted to do so must disseminate their knowledge by popular discourses and essays. When hygiene shall be regarded by all classes as necessary, and as much a matter of course as the use of the railroad, steamboat, the telegraph, telephone, and labor-saving machines, then, but not until then, striking results may be expected.

The wonderful, the revolutionary discoveries made by students of internal medicine during the nineteenth century are not always appreciated as they should be, for their results are often demonstrable only by statistics; and the dramatic rescue of individuals from certain death, which the surgeon at times accomplishes, unfortunately cannot be effected by the therapeutist. It is not in the nature of his art. Great progress, however, has been made in the use of medicines and remedial procedures. Good reasons can be given for their employment, and their mode of action can be explained. Empiricism no longer governs their use as it formerly did. The placing of therapeutics upon a scientific basis began in the last century, when the physiological effect of drugs was first demonstrated by experiments upon animals.

No field of medical research needs cultivation so much or is more certain to yield a rich harvest than therapeutics. It is surprising that we have not a larger volume of accurate knowledge of the effect of drugs than we do possess. Of late pharmacology has been neglected for studies which have temporarily been more enticing to experimenters, such as bacteriology and experimental pathology. Moreover, a knowledge of these subjects is essential to enable a clinician to apply his therapeutic resources to the mitigation of suffering, the support of strength, and the elimination or destruction of noxious substances. One can safely prophesy that the exact utility and the limitations of drugs and medical procedures will be defined in the present century.

To accomplish this, not only is more knowledge required of the physiologic action of drugs, but also better means of accurately measuring their effects when they are given to patients. We know when pain is relieved we can sometimes measure effects produced upon the heart and blood vessels and temperature. Beyond this we depend for knowledge upon the impressions of physicians, impressions which must be corrected and often reversed by a wide experience. Clinicians possess only a few appliances or methods for the exact study of the sick. It is to be hoped that more will be discovered, and that they will also make it possible to register with accuracy the effect of drugs. When this is accomplished, undoubtedly a smaller number of useful drugs will be employed, but these with greater exactness.

It is true that more drugs are used today than need be, because patients demand them as a fetish; but this will be changed when laymen learn that it is the function of the physician to teach them what to do to give nature the best chance to effect repair, what to do to make themelves comfortable and to preserve life; when they learn that it is a physician's function to teach them how to protect others from the same ailment, to foretell the possibility of recovery or death, and to avert or forestall complications. Medical men should include time and faith in their materia medica as important means of effecting a restoration of health. I do not mean faith in a fetish procured in an apothecary's shop, but faith in the wisdom, honesty and disinterested devotion of physicians which will enable them to accomplish all that can be done for the suffering.

Although the greatest discoveries in the field of internal medicine have been applicable to the prevention of illness in the masses, much has also been done to increase the chances of recovery of individuals who are sick. I need call attention only to a few of the improvements in treatment which have been effected, to remind you of more. Typhoid fever, which has been a scourge in all civilized countries, and constantly present in all larger centers of population, has not only been greatly lessened,—sometimes even suppressed by improved hygiene, but the chances of recovery of the one who is sick with it have been increased several fold by improved methods of treatment. Twenty-five years ago the mortality from typhoid fever in the hospitals of the world was from 20% to 35%; today it is from 5% to 15%. The better results are due to the cold baths which are used, to a more generous supply of fresh air, to proper feeding, and to protection against, or the prompt treatment of, complications.

One great therapeutic discovery has been made at the end of the nineteenth century — the discovery of antitoxins, the natural antidotes to the poisons of infectious agents. For a very long time it had been known that something developed in the human system during the course of many ailments which gave to the sufferer from them for a variable time immunity from a recurrence of the same disease. Until the existence of parasites and of poisons generated by them was proven, an antitoxin was of course unrecognizable. Moreover, the possibility of such a thing in diseases, one attack of which did not cause immunity to others, was not even suspected. But the diphtheria antitoxin, the most efficient of those of which we know anything, is one belonging to this last group of ailments. The chemical composition of antitoxins is yet to be discovered. Since antitoxin has been used the mortality from diphtheria has been reduced about one-half. The most extensive collection[4] of statistics gathered from all civilized countries shows that when antitoxin is used on the first day of the disease, the mortality is 5%, increasing rapidly to 30% when used on the fourth day or later. Before its employment, the average mortality of the disease was from 25% to 35%. To effect a still greater reduction in the death rate from this ailment, it is necessary that it be recognized early, and that

[4] Das Oesterischen Sanitätswesen, 1900, No. 52.

antitoxin be employed more generally as a preventive for those who have been exposed.

That tetanus antitoxin and plague antitoxin are valuable is admitted. Many others, such as pneumonia, typhoid, tubercle, scarlet fever, erysipelas and streptococcus antitoxins are still in the experimental stage. But even though it should be found that few natural antitoxins can be isolated for use as remedies, those already discovered confirm physicians in the hope that specifics will be found some day.

Another therapeutic discovery made at the close of the century which has thrown a flood of light upon some obscure points in physiology and pathology, and has restored to usefulness many who were formerly incapacitated and incurable, is that of internal secretions, and especially the rôle of the secretion of the thyroid gland. Ingredients in the thyroid, suprarenal bodies and ovaries produce as definite effects upon the living body as many extracts from plants or synthetic chemicals. The pituitary body, the thymus, and bone marrow may also have a value as yet undetermined. The rescue of those suffering from myxedema and cretinism by the administration of thyroid is one of the few happy dramatic incidents which fall to the lot of the practitioner of medicine.

That a much larger proportion of recoveries from tuberculosis occur today than formerly is evident from the statistics of this disease, but this lessened mortality is not due to prevention only. Trudeau has estimated that 18% of all persons have tuberculous lesions, because a reaction to tuberculin can be demonstrated in that proportion. This statement is confirmed by Councilman, who states that his autopsy statistics show that at least 17% of all who die have had this disease. But in spite of this prevalence the mortality from the ailment is lessening.

Rabies and tetanus are two diseases which until recently were thought to be incurable. Rabies can be suppressed by killing unowned dogs and by muzzling the rest. Upon this point the following statistics from England are very instructive: In 1887, 217 deaths occurred in Great Britain from rabies; in 1888, 160; in 1889, 312. A muzzling law was then enforced. In 1891 the death rate from the disease fell to 129; in 1892 to 38. The muzzling ordinance was repealed, with the result that in 1894, 248 deaths occurred from mad-dog bites, and 672 in 1895. Again muzzling was made compulsory. The death rate once more diminished to a considerable extent; in 1897 it was 151; in 1898, 17; in 1899, 9; and in 1900, none!

Pasteur's great and wonderful discovery of a method of attenuating the virus of rabies and rendering those who have been bitten by mad dogs immune by rapidly accustoming them to stronger and stronger viruses, has reduced the mortality.

Tetanus, quite common in hospitals formerly, is now prevented by properly cleansing and protecting wounds. It has become so rare a disease that today most students do not see a case of it during their college course.

The nineteenth century will be known in the history of medicine as the century of experimental medicine, for it is in that field that the greatest discoveries of the age have been made. The names of Pasteur, Koch and Lister will forever be linked with it as representing its greatest achievements. But these achievements would not have been possible had not the physicist perfected the microscope, and had not Virchow and his pupils explored the field of cellular pathology to its farthest limits. Around Virchow's name as a banner will historians gather the achievements in medicine during the early and middle portions of the century, and around Pasteur's those of its close.

If our greatest needs conditioned the growth of knowledge, we could prophesy what will be the great field of research of the twentieth century; but history teaches us that our needs can often not be met until some sister science has grown, or new methods of experimenting have been devised. Therefore, the future must remain a blank to us. However, we are more apt to accomplish what is needed if the problems are kept clearly in mind. We greatly need more exact methods of clinical study, more accurate knowledge of the effect of remedial agents and procedures; but more than all else, we need a knowledge of the changes which take place in the living tissue in health as well as in disease.

The anatomist has resolved the cellular structure of the body; the physiologist, the laws which govern the action of its organs and the chemic changes which are wrought upon its surfaces; the bacteriologist has discovered the parasites that infest, and often destroy it; the pathologist has described the anatomical changes which disease produces; the clinician has linked all these facts together, and has discovered ways of seeing with the intellectual eye disturbances of physiologic function, of determining their cause, and of anticipating the anatomic changes which they will produce. But this does not satisfy us; we want a knowledge of the atomic and molecular structure of cells, of the changes which take place in the atoms and molecules in health and in disease, and of the effect of medicines and remedial procedures upon them. This knowledge chemistry must give us. I feel sure that, standing as we do at the beginning of a new century, expecting greater developments in it than in the last one, we are halting before new discoveries in chemistry, waiting for new methods of studying metabolism in microscopic portions of tissue. When this knowledge is vouchsafed, medicine will make another stride as great as was made when, by the perfected microscope, cellular pathology and bacteriology became possible.

Let us look forward with confidence to the Virchow and the Pasteur of the future.

THE next meeting of the American Medical Association will be held in Saratoga, N. Y.

Original Articles.

SOME OBSERVATIONS ON CHRONIC SEMINAL VESICULITIS.

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THOUGH disease of the seminal vesicles has been recognized for a number of years, it is only comparatively recently, and largely through the work of Fuller, that men have come to appreciate its frequency and importance.

The writers have recently seen a number of cases of seminal vesiculitis at their clinic at the Boston Dispensary, and feel that their observations may be of interest to others.

The disease undoubtedly occurs without urethral disease, but the writers have seen very few cases of that sort, and the present paper deals only with cases following urethritis.

The number of cases found leads us to believe that this disease is much more frequent than it has generally been supposed to be; the writers found 60 cases of seminal vesiculitis among 540 out patients presenting various sorts of genito-urinary disease. It should be said in explanation, however, that we do not treat syphilis, and that the clinic has a wide reputation among gonorrheal patients. This probably gives us a larger proportion of old and chronic cases of urethritis than some clinics have, and consequently a larger proportion of cases of vesiculitis.

Had we made a systematic search in all patients, we probably should have found a larger number of diseased vesicles, but because of the size of the clinic only those patients were examined in whom urethral disease was unusually stubborn, or who presented symptoms suggestive of possible involvement of the vesicles. A point on which the writers would lay stress is that seminal vesiculitis, secondary to urethritis, is seldom a sharply-defined single disease, but is practically always associated with more or less chronic prostatitis and chronic involvement of the posterior urethra.

The symptoms of seminal vesiculitis may be divided, perhaps rather artificially, into direct and reflex. In any given case the symptoms present may all be of the direct type, all of the reflex type, or a combination of both. As a rule in the long-standing cases the reflex, and on the whole more characteristic symptoms predominate. In the recent cases we more commonly have the direct symptoms, which are often not particularly suggestive of the lesion.

Among the direct symptoms are feelings of vague discomfort in the rectum and perineum, which at times become actual pain; pain and discomfort on defecation; persistence of discharge or shreds, in patients in whom stricture and other gross urethral lesions can be ruled out; particularly suggestive is the persistence of small comma-shaped shreds from the prostatic urethra. Another common symptom is the starting up, without any indiscretion on the part of the patient, of a urethral discharge which had nearly or quite stopped; frequency of micturition is occasionally found, sometimes associated with more or less tenesmus; nocturnal emissions slightly streaked with blood, and the persistence of mucoid discharge from the glands of the urethra. The direct symptoms are for the most part urinary in character, and not particularly distinctive.

The reflex symptoms comprise all the symptoms more commonly ascribed to sexual neurasthenia. There may be suprapubic pain, pain in the back, pain in the head of the penis or at some definite point along the urethra, while the urethra, on endoscopic examination, shows either no abnormality, or none sufficient to give such pain. These pains are often very definite in location, and patients will give the seat of the pain as the same, day after day. Pain along the spermatic cord may occur, and when the disease involves but one vesicle, the pain has been in the corresponding cord.

In the opinion of the writers, the most characteristic symptoms of seminal vesiculitis are the occurrence of irregularities in the function of erection. In the early stages of the disease it is common to have a great increase in sexual desire, which in the later stages gives way to sexual apathy and impotence. In giving their histories, patients with disease of long duration often tell of their former prowess in sexual matters, which they contrast with their present impotent condition. In the earlier stage, patients not only suffer from very frequent nocturnal erections, but the slightest sexual stimulation suffices to bring on an erection which may or may not be accompanied by ejaculation. These erections are usually painless, but when due to the lighting up of an old urethral process, or when a fresh infection of the urethra has been engrafted on a chronic vesiculitis, we may have all the painful elements of chordee combined with the persistence of erection so characteristic of vesiculitis.

Unless one grasps the underlying cause, this sort of chordee is very difficult to control, the usual sedative treatment with bromides, opium, belladonna, hyoscyamus, etc., together with careful emptying of the bowel and hot injection, having little apparent effect. In our experience, these erections have always quieted down very promptly under no other treatment than stripping of the vesicles. We feel that very frequent erections or very persistent chordee is strongly indicative of seminal vesicle disease, as is also the absolute loss of the power of erection in patients who have no lesion of the brain or spinal cord.

While the so-called neurasthenic symptoms, combined with the above-mentioned irregularities of erection are highly suggestive, almost pathognomic of this trouble, the only way in which an

absolute diagnosis can be made is by rectal examination.

For examination the patient should present himself with an empty rectum and a moderately full bladder; he should stand with his feet apart, bending well forward over a chair, and his legs should be straight at the knee. The digital examination can be materially helped by the examiner making suprapubic pressure with his hand, or, still better, with his closed fist; this will crowd the pelvic viscera down so that the vesicles are more accessible. One can considerably increase his reach by putting his foot on a stool and making pressure with his thigh against the elbow of the examining arm.

At first it is a little hard to acquire reasonable accuracy in telling what one feels, and one's ideas of the prostate as it is usually described are rather upset. It is not at all uncommon to find a large prostate in a young man and a small atrophic one in a man approaching old age. In some patients one can feel both the vesicles and ducts when they are diseased; they are enlarged and hard to the touch, and the patient complains of tenderness when they are palpated. In other cases one feels nothing, and the examination will show only unilateral tenderness, or it may be, tenderness on both sides in the region of the vesicles and ducts. In a very few patients with atonic vesicles in which this disease has been of long duration no vesicle can be felt, nor is there tenderness on palpation. In these patients it is impossible to rule out the disease unless, after carefully stripping the vesicles and ducts, one gets none of the detritus so characteristic of vesiculitis. The appearance of this detritus we shall describe later.

The vesicles and ducts of both sides may be involved, but it is more common to have the involvement unilateral. For some reason unknown to the writers the left vesicle has a peculiar predisposition, which is not unlike that of the left testis in epididymitis.

Rarely one finds what feel like concretions in the vesicles. The presence of such a concretion, in one case at least, was not incompatible with relief.

Combined with the above condition of the vesicles and ducts, one finds various irregularities in contour and consistency of the prostate.

It may be very tender, it may be more or less enlarged, sometimes surprisingly so. This enlargement may be symmetrical, but irregular enlargement is most common. It is not uncommon to have the prostate appear to extend up to a point in the median line, which gives it somewhat the conventional heart-shape, with the base below. This is probably really due to exudate over the ducts, which fuses the structures together and makes it impossible to sharply define the true upper border. There may be little circumscribed indurations in the prostate which have not quite the characteristic hardness of carcinoma, but a hardness suggestive of that condition. When vesicles and ducts on both sides are involved, a raised triangular shaped induration may occasionally be felt on the surface of the prostate, the apex being below. When the disease is unilateral, this raised induration may be felt on one side.

A boggy edematous condition of the center of the prostate near the upper boundary is not uncommon. After massage or steady pressure upon such a spot, one finds that a little depression remains in which the pulp of the finger fits. The large edematous and tender prostates usually go with the more recent forms of disease; the hard and shrunken with those of long duration, although this does not invariably hold true.

Almost as characteristic of vesiculitis as the condition felt per rectum, is the material gotten after massage. This material may either drip from the meatus during the stripping process, or be voided in the urine.

The material, when it oozes from the meatus during massage, is milky, and contains masses of various sizes. If we find, on immediate examination of this detritus, that all the spermatozoa are non-motile, this is almost, if not quite, pathognomonic of vesiculitis; on the other hand, the finding of non-motile spermatozoa in the detritus washed out by urine is not decisive, as the spermatozoa very soon lose their motility when in urine.

The urine voided after massage is usually more or less turbid, with a slightly opalescent tint, and in it there are often little caseous-looking masses which are heavy and fall to the bottom of the glass. These are made up of epithelial and pus cells. Another very striking thing is the presence of large, partly rolled plates of mucus. These look like shavings of paraffine, and float about. They soon settle, however, and then, particularly if the urine is acid, very quickly disappear. If these paraffine-like flakes are removed from the urine at once, and their method of vanishing followed, it will be found that they soak up fluid and become transparent, gelatinous masses, which under the microscope show masses of mucus, in the meshes of which are a few leucocytes, some epithelial cells, and at times many spermatozoa, as well as various bacteria.

The treatment which has given the writers the best results in these cases of vesiculitis is massage of the vesicles and ducts and of the prostate as well. One cannot massage the vesicles without incidentally massaging the prostate to a certain extent; but the writers feel that because of the involvement of the prostate, it should receive definite attention.

For massage the patient's rectum should be empty and the bladder moderately full. He should pass enough urine to wash out the urethra, but should hold some in the bladder. The patient then assumes the position spoken of in examination for the disease. The surgeon introduces his right forefinger, making strong pressure against the perineum. The bracing of his arm, previously described, and strong supra-pubic pressure, are of great assistance. The ducts and vesicles are then gently stroked in a downward direction, using only the terminal phalanx of the finger. The

prostate is then treated in much the same manner, though the pressure used on the prostate may usually be greater than that used on the vesicles, without causing discomfort.

At the beginning of treatment, or when the vesicles are very tender, the time of massage is very short. At first the patients are massaged at intervals of from five days to a week. Later the intervals are longer and the massage more thoroughly done.

In some patients the detritus from the vesicles will be seen to drip from the meatus during massage; in others none is seen until the patient passes the urine retained for the purpose of washing out the urethra. The amount of material thus obtained varies greatly. It occasionally happens that at the first attempt nothing is gotten, while at a subsequent treatment there may be a great deal of the detritus.

During massage a sort of semi-erection is common, also an almost uncontrollable desire to urinate. If the patient, in spite of injunctions, has emptied his bladder, and one finds that he cannot pass urine after massage, it is wiser, in our opinion, to fill his bladder with mild corrosive, permanganate or nitrate of silver solution, and then allow him to pass it. In the majority of cases it is perfectly safe to let him wait until his next micturition; but in a few instances a mild cystitis has followed massage when the refuse has not been washed out at once.

In the greater number of cases the chronic prostatitis and the chronic posterior urethritis need no attention other than the massage.

In some patients, however, when the disease has been of long duration, and presumably accompanied with more or less round cell infiltration in the submucous tissue of the deep urethra, dilating with Oberlaender's or Kollmann's dilator seems to have a beneficial effect. Of these two instruments the Kollmann, while much the more expensive, is in our opinion vastly superior. It apparently opens the mouths of the glands of the prostatic urethra, and allows any solution to enter them freely. It is also probable that the pressure exerted on the infiltrated submucous tissue aids in absorption. With this dilation we use rather strong solutions (5%) of nitrate of silver applied with a deep urethral syringe. In some cases they seem to aid materially; in others they have been badly borne and had to be given up. Hot rectal irrigations through a double current tube have given a good deal of benefit in some cases; in quite a proportion they seem to have no effect; in a few they seemed to aggravate matters, and had to be omitted. We have used the various balsamics in conjunction with massage in a number of patients, though we are yet to be convinced that they are of any real benefit. Tonics and hygiene have in this condition a distinct though entirely secondary place.

The treatment which is of greatest benefit and apparently curative, so far at least as subjective symptoms go, is the mechanical emptying of the diseased vesicles and ducts.

The writers wish to utter a word of warning against the treatment of vesiculitis by regulated sexual intercourse. This treatment they have lately heard advised, and it would probably appeal to many patients.

In the impotent cases with atonic vesicles it is of course out of the question. In the cases in which it seems plausible, namely in those suffering from frequent erections and emissions, it has proven itself useless. Had it been curative we should not find the atonic cases, as most patients would have cured themselves during the early stages when the sexual appetite is so stimulated that they often commit great excesses. The failure of this treatment is due to the fact that the diseased vesicles do not empty themselves during intercourse.

The writers have examined two patients the day after they had, against advice, indulged in coitus. These men had been under treatment regularly, and the amount of detritus did not vary to any extent from the usual amount. To allow sexual intercourse occasionally when the treatment is pretty well advanced seems to us probably not harmful, but to advise it as a therapeutic measure is, we think, a great mistake.

As to the results obtained with these cases: a few who have had no subjective symptoms for some time have been discharged. It depends on one's definition of the word "cure" as to whether they could be styled cured. If one demands only that the subjective symptoms shall have disappeared, they are cured. If one demands that the prostate and vesicles shall have become normal in appearance and that there shall be no detritus from the vesicles, they are not cured.

A great many have disappeared without being discharged, having become very much better, so far as subjective symptoms go, although without a corresponding improvement objectively.

One patient who had not had an erection for some two years has become so that erection takes place with about normal frequency. Men who have had vague pains for a long time have gotten rid of pain. Several suffering from abnormal frequency of erection have improved. Many men having urethral discharges of long duration are well. Marked improvement has been noted in the mental attitude of those patients in whom the neurasthenic element was very noticeable.

Coincident with the improvement in symptoms, there is often a marked improvement objectively: the ducts and vesicles become less tender and less easily palpable; the detritus grows less; the big and soggy prostates, as well as the hard and atrophic ones, tend to become more normal in contour and consistency, the big prostates decreasing in size and the small prostates increasing.

The more recent cases do best, as would be expected, and the younger patients, with a few exceptions, improve much faster than those above forty.

We think we may expect that all cases of vesiculitis can be greatly benefited by careful treatment.

In the majority the subjective symptoms can be made to disappear for at least a considerable time. For the older patients, especially for those having disease of long duration, we feel that massage will probably have to be used now and then, that they may be kept comfortable. They are much better for a few days immediately after massage than they are a little time later. Even if these patients are benefited only temporarily, the treatment is well worth while.

In the opinion of the writers it is probable that a certain number of the cases of impotence and many of sterility are due to vesiculitis; this gives its treatment a wider importance than the mere remedying of the discomfort the patients suffer.

We would strongly advise the examination by rectum of all patients with urethral disease, recent or of long duration, in which the disease is not progressing favorably, particularly of those showing the so-called neurasthenic symptoms.

As the writers have attempted merely to give their own clinical experience with seminal vesiculitis, they purposely have omitted the subjects of etiology and pathology, and have not attempted to compare their observations with the experience of others.

IODOPHILIA.[1]

BY THEODORE DUNHAM, M.D., NEW YORK.

I HAVE ventured to coin this word to designate a reaction which occurs in the blood under certain pathological conditions. I bring this subject before you because this reaction has been a definite help to me in diagnosis, and I feel that it deserves a more extended use than it has yet received. The cases in which it gives aid are those of doubtful suppuration and doubtful pneumonia. We are not infrequently confronted with cases of appendicitis where an additional aid to the early recognition of pus would be of the greatest value; and there are other cases of deep-seated trouble with doubtful physical signs where an additional means of throwing light on the presence or absence of pus would be a great help. Pneumonia is often difficult of recognition during the first few days after the onset. An additional aid in diagnosing it during this stage would be of real value.

Let me say a word about the technique of the reaction and then speak of its clinical bearings.

The technique is very simple. It consists in the staining and examination of a spontaneously dried blood smear. The smear need not be stained at once, but will be good for use several weeks at least after making. It is thus possible to make the smear at the bedside and send it to the laboratory for staining and examination.

Only one solution is required, and this is made up as follows: Three parts of potassium iodide are dissolved in one hundred parts of water. In this is dissolved one part of iodine. The resulting solution is thickened to a syrupy consistency by the addition of lumps of gum arabic and occasional shaking until they are dissolved. The blood smear is mounted in a drop of this syrup and a bit of filter paper placed at an edge of the cover glass to absorb the excess of fluid. The specimen is then ready for examination by an oil immersion lens. When blood is treated in this way the lymphocytes and the eosinophiles are not affected by the stain. In normal blood the polymorphonuclear neutrophiles are either unaffected or their protoplasm is tinged a faint pinkish or brownish color. Under some pathological conditions, however, the protoplasm of a certain proportion of the polymorphonuclear neutrophiles takes on a reddish-brown coloration. The mode of coloration differs in different leucocytes; in some it is a diffuse stain; in some a granular network; while in others the color is confined to large or small refractive granules, varying in tint from a light pink to a dark red. Where one or more such leucocytes can be found in a search of a few minutes we have the condition to which, for the sake of brevity, I have ventured to give the name "iodophilia."

It is apparently always present in progressive suppurations and in progressive pneumonias. It may also occur in a few other diseases, but they are fortunately easy of recognition in other ways and not to be confounded with abscess or pneumonia. I will refer to them later. First, let us consider the iodophilia of acute suppuration. The intensity of the reaction is said by other observers to be closely related to the intensity of the process, and I have found this to be true in the cases I have examined. Small abscesses will, however, if the process be active, give a distinct reaction. In cases of so-called tubercular abscess the reaction is absent. Abscesses caused by the germs of acute suppuration, but which are well walled off and have assumed an indolent course, rarely give the reaction. If, however, the process lights up again, the iodine reaction is said to return. Goldberger and Weiss, from an examination of a considerable number of other diseases as well as of abscess, reach the conclusion that a distinct intracellular iodine reaction, even if made out in only a few leucocytes, warrants the conclusion that there is present a progressive suppurative process. In reaching this conclusion, of course the few other lesions which give rise to iodophilia must be excluded.

I shall not weary you with details of all the suppurative cases in which I have tested for iodophilia. Suffice it to say that I have found it in every case where the abscess was of any size and the process of any virulence. I will speak in detail of only 3 cases in which the finding of iodophilia was an aid in reaching a correct diagnosis.

D. K., age seven and one-half months, was admitted to the Babies' Wards of the Post-Graduate Hospital with an adenitis of the neck. No previous history was obtained. The process was not acute, and at first I thought the gland tubercular. The leucocytes were 19,700. Iodophilia was very

[1] Read before the Warren Club, of Boston, March 28, 1901.

striking in some leucocytes. At operation I found the gland had broken posteriorly, and my finger passed in the pus cavity between the spine and the upper part of the trachea. The pus showed streptococci.

A. M., a girl of thirteen years, was admitted to the service of Dr. Joseph D. Bryant at Bellevue Hospital, suffering from a not very acute appendicitis. She had had right iliac pain for five days. The leucocytes were only 12,200. The iodine test showed diffuse browning of many leucocytes, and a few contained brilliant iodophile granules. Here the leucocytosis was low, but the iodine reaction pointed to pus. The case was operated upon three hours later, and a considerable amount of pus was found.

M. K., a boy five years old, was admitted to the Babies' Wards with a history of excellent health until three months prior to admission. His illness began with general misery, soon followed by a marked jaundice. The jaundice lasted several weeks. When it disappeared he was still sick and had fever. For a time he was treated as a typhoid. Then his disease was diagnosed as appendicitis. Finally a tumefaction was discovered in the region of the gall bladder. When I first saw him he was in a rather low condition, running a very erratic temperature which fluctuated between 99° and 105°. In the neighborhood of the gall bladder was a tumor, very hard, rather tender, and just visible to the eye. I found the leucocytes 21,800. A blood smear showed a number of iodophile leucocytes. On opening the belly I found what the iodophilia would indicate: an abscess. It was the size of a pigeon's egg, in the substance of the liver near its margin, and about three-quarters of an inch from the surface. The pus gave a pure culture of staphylococcus pyogenes aureus.

In the 3 foregoing cases the presence of iodophilia helped either to make or clinch the diagnosis.

Let me now speak of the relation of iodophilia to pneumonia. Other observers say that the iodine reaction occurs constantly in pneumonia. I have found this to be true in the cases which I have examined. The reaction would not be of great value in pneumonia if it were present only when consolidation was so far advanced as to give a typical picture of the disease, for then the usual diagnostic signs are sufficient. But in 2 cases where I examined the blood at an early stage, before physical or other signs were specially suggestive of pneumonia, I found a well-marked iodophilia. This early appearance of iodophilia in pneumonia I have not seen referred to by others, and know of it only from the two instances where I looked for it. If it proves to be uniformly present soon after the onset, iodophilia will be one of the earliest diagnostic signs of pneumonia.

I will cite 3 cases in which I had failed to diagnose pneumonia prior to finding iodophilia, but where a pneumonia was subsequently proved to exist.

S. Di M., age forty-seven days, was admitted to my service at the Babies' Wards in a moribund condition. The left femur was the site of an ununited fracture which had probably occurred at birth. The child had been artificially fed and poorly cared for. Respiration was feeble. I could make out nothing abnormal in the lungs. The blood showed iodophilia. At the autopsy there was found a bronchopneumonia of the left lung.

E. K. D., age forty years, was taken suddenly with chilliness, intense facial pain, sore throat, and a temperature of 102.5°, apparently an attack of grippe. In the evening of the second day his temperature was 104.3°, and Dr. Janeway, who saw him in consultation with me, found a suspicion of râles in the right lower lobe. In the morning of the third day I found as light pleuritic friction at one spot over the right lower lobe. At noon I examined the blood for the first time. There was a leucocytosis of 27,600 and iodophilia was present. Later in the afternoon Dr. Janeway found the signs of a coming pneumonia of the right lower lobe. That night there was rusty expectoration, and the sputum contained pneumococci. Solidification progressed.

C. T., a boy age three years, was in my service at the Babies' Wards under treatment for stricture of the œsophagus. His general vitality was low, but he was up and about the ward. One evening his temperature shot up to 105° without other noteworthy symptoms. The next morning it was 104°, and in the afternoon again 105°, with the pulse 180 and the respiration 38. Examination of the chest was negative. I found a leucocytosis of 55,800 and a well-marked iodophilia. On the strength of these findings I suspected a beginning pneumonia. A day and a half after I had found the iodophilia, signs of partial consolidation showed in one upper lobe. He ran a regular course of lobar pneumonia, the fever continuing high for five days.

In these 3 cases the finding of iodophilia was a help in diagnosing the presence of pneumonia. Two of the cases showed it to be an early sign.

As I have already said, certain diseases must be eliminated from the diagnosis before one concludes that iodophilia implies the presence of pus or pneumonia. Hofbauer at Neusser's clinic in Vienna found that iodophilia occurred in certain grave blood diseases. In 18 cases of chlorosis he failed to find it. In 18 cases of secondary anemia he found it in 2, but one of these was complicated by pyothorax and the other by gonorrheal adnexa, and its presence was probably due to these complications. But in really grave anemias, as that associated with cancer of the stomach, severe chronic intoxications, etc., where the blood picture approached that of pernicious anemia, he regularly found a greater or less number of iodophile leucocytes in the 7 such cases he examined. In advanced pernicious anemia and in leukemia he also found it. I found it very marked in the one case of leukemia which I have examined in this way.

As iodophilia is a natural accompaniment of these diseases, in them its presence throws no light on the existence of pus or pneumonia. During an examination with the iodine test these grave blood diseases would surely be recognized. With their elimination, the finding of iodophilia points to acute suppuration or to pneumonia.

Clinical Department.

CONTRIBUTIONS FROM THE LONG ISLAND HOSPITAL, BOSTON HARBOR.

CYSTIC TUMOR OF MEDIAN NERVE; OPERATION: RESTORATION OF FUNCTION.

BY A. S. HARTWELL, M.D., BOSTON,

Assistant Superintendent and Physician, Long Island Hospital.

A WOMAN, eighteen years old, was admitted to the Long Island Hospital November 15, 1900, said to be suffering from syphilis. The history dated back four months, and was in substance as follows: An eruption on the chest causing much itching, and a swelling at the right elbow, just above the joint, which was increasing in size and tender.

Examination showed a freely movable tumor at the inner edge of the biceps muscle on the right forearm, about 5 cm. above the joint.

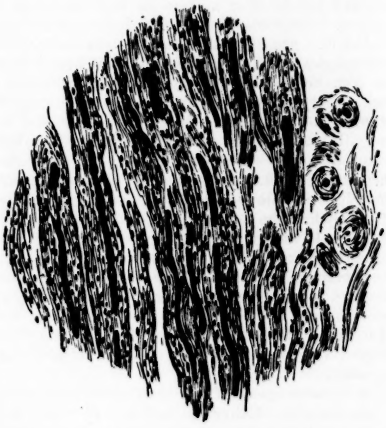
It was about the size of a chestnut. Moving it about caused tingling down the forearm and into the hand through the distribution of the median nerve, in which there was also loss of sensation to touch and pain. There was likewise considerable paralysis of motion. A diagnosis of tenia versicolor of the chest was made, and the swelling was thought to be a tumor of the median nerve. Syphilis was ruled out.

Operation showed the following condition: The median nerve was enlarged to a fusiform-shaped tumor 4 cm. long by 1.75 cm. wide. The fibres were separated, and between them and in the center of the tumor was a clear, colorless fluid somewhat thicker than water. Tearing the fibres apart, the fluid easily escaped, leaving the nerve slightly enlarged and edematous, but otherwise apparently normal. A small piece of the nerve was removed for examination and the wound closed.

It healed readily, and there was considerable pain in the arm for several days following the operation. Ten weeks after operation there was no return of the tumor, no pain or sensory disturbance, and, excepting slight weakness in the arm, it appeared to be normal. The skin eruption disappeared upon application of local treatment.

Pathological examination.— Examination of a portion of the nerve excised showed macroscopically no changes. Sections stained by the Weigert hematoxylin method show a considerable separation of the individual fibres, a very marked thickening of the sheaths of Schwann, and an almost complete disappearance of myeline (see figure). The axones cannot be clearly distinguished in a section stained by Van Gieson's picric-acid-fuchsin solution. A nuclear stain (hematoxylin) shows a very considerable proliferation of cells of the connective tissue surrounding nerve fibres, but nowhere is a distinct new growth to be made out. The nerve, in general, presents the appearance of edema, with proliferation of connective tissue elements and degeneration of nerve fibres. It may be surmised that the pressure exerted on the nerve by the presence of the cystic tumor secondarily led to the intrinsic alterations of the individual nerve bundles.

The case is again interesting from the fact that the patient was sent to a physician previous to her admittance to the hospital, who pronounced the affection syphilis, because, as the patient stated, of the rash on the chest and an enlarged gland at her elbow. The relatives with whom the patient lived were told of her supposed condition, which resulted in her being sent away from home



in disgrace. The injustice of so openly declaring a case to be one of syphilis, without the most convincing evidence, is well illustrated here.

The patient was again seen May 27, 1901. The improvement following the operation has been continuous; she has gained 12 pounds in weight, and is able to use the affected arm for all purposes, noticing only a somewhat increased awkwardness in making finger movements. Gross strength is essentially unimpaired, and all movements of the hand and arm are possible. There is still considerable tenderness over the scar of the operation, and occasional radiating pain in the forearm, especially on exertion. Sensation is objectively impaired only in the terminal phalanges of the middle finger of the right hand, in which there is almost complete loss of the temperature, pain and tactile senses. Examination with galvanism shows a good reaction from the

median nerve above the seat of operation, a slight quantitative diminution of excitability in the flexor muscles of the forearm, and a complete reaction of degeneration — slow response, AnC greater than CaC. — in the small muscles of the thumb. The patient regards herself as essentially well, and there is certainly no present evidence of a return of the cystic tumor.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M.D., BOSTON.

THE IMMEDIATE AND REMOTE RESULTS IN ONE HUNDRED CONSERVATIVE OPERATIONS ON THE OVARIES AND TUBES.

Burrage[1] reports the results in 100 cases of conservative operations upon the ovaries and tubes which have been under observation a year or more after the operation.

Classing as conservative operations all those in which an operation upon the appendages being performed (not including suspension of the ovaries or hysterectomy), one ovary, a portion of an ovary, or one tube or a portion of one tube, was left behind, he had performed 156 operations with 3 deaths.

During the early operations marked enlargement of resected ovaries had been noted in the weeks immediately following operation, the enlargement disappearing in the course of time, but being attended by pain. These phenomena had latterly been less frequently noted, and the writer thought the enlargement to have been due to hemorrhage from the free puncturing of cysts without careful hemostasis, and due to hemorrhage as well as trauma. Pelvic inflammatory exudate about ovary and tube had been noted in a few cases following resection of a closed tube, these being old gonorrheal cases which had suffered repeated attacks of pelvic inflammation.

In other respects convalescence from operation had been as uneventful as in other similar operations where ovaries and tubes had not been resected. As a general rule, conservative operations require for their performance a somewhat longer time than radical operations, a fact which should be remembered in operating on enfeebled patients.

The greatest interest centres in the late results of the preservation of ovarian and tubal tissue. In the instances where the writer has left an ovary or part of an ovary in doing hysterectomy, the symptoms of the artificially induced menopause have seemed to be lessened. There is a possibility of pregnancy occurring in the tube or the abdominal cavity where the uterus has been removed and the ovary and tube left, and such an instance has been reported.

In summarizing his 100 cases, the writer finds a symptomatic cure in 73, and no relief in 27. From the fact that a large number of the patients were pronounced neurasthenics, and from the difficulty of estimating the relative share of the sexual organs and the nervous system in the symptom complex, the writer thinks that too much weight ought not to be attached to these figures.

Anatomical cure (ovaries and tubes normal to feel, and well placed) was noted in 44 out of 69 cases which came under observation, or 64%. Some enlargement or prolapse of ovaries and tubes was found in the remaining 25 cases. Pregnancy following operation occurred in 19 cases. In no instance, however, did pregnancy result after resection of a closed tube, both tubes being closed at the time of operation.

After correcting his tables by deducting from the list of married women those who afterwards had oöphorectomy or hysterectomy performed, who became widows or took measures to prevent conception, and adding those who became married after operation, Burrage found that $32\frac{7}{10}\%$ became pregnant. All of the cases of subsequent pregnancy except 3 had been pregnant before the operation, so that $34\frac{1}{2}\%$ of those who had previously borne children became pregnant after operation, while only $6\frac{1}{3}\%$ of those previously sterile subsequently became pregnant.

Several of the unsuccessful cases were in women over thirty-five years old, with extensive, long-standing tubal and ovarian disease; it would seem less desirable to subject such cases to conservative operations than the younger women with the same trouble, for at this time of life the patient is suffering not so much from the ovarian and tubal affection as from the long-continued effects of it. There is little chance that the uterine organs, diseased for many years, will be able to regain an approximately normal condition in the few remaining years of functional activity, both because of the limited time and because the reparative processes of the system are less vigorous than at an earlier age. Therefore these patients either need no operation at all, or one which will entirely eliminate the ovarian function, thus doing away with the monthly pain and discomfort, which are an additional burden to an already jaded nervous system.

As bearing on the question of resected ovaries becoming diseased at some future time, the writer found that out of 85 cases, in only 1 case, a syphilitic, was another operation necessary for subsequent enlargement of an ovary resected for cystic disease.

In 3 instances in which one ovary was removed and cysts punctured in the remaining ovary, another operation was required for disease of the ovary left behind. In 7 other cases a remaining ovary, cystic at the time of operation, was later noted as being large, though causing no ovarian symptoms.

In 5 cases of the extensive purulent inflammatory type, all of them gonorrheal and 3 syphilitic, one ovary and tube being removed in each case, the remaining ovary became diseased following operation, and another operation was indicated,

[1] Medical News, April 13, 1901.

although only one of the patients had actually submitted to it.

In 2 cases a diseased ovary was left at the bottom of the pelvis, once after the removal of the sac of an ectopic pregnancy and once after the removal of a pus tube. Both of these women had suffered pain since the operation, but neither had been willing to be operated upon again.

As far as the writer had been able to determine, the amount of ovarian tissue present had no definite relation to the amount of menstrual flow or the intensity of sexual desire and gratification.

The most unfavorable cases for conservative operations are the pronounced neurasthenics who are approaching the menopause, patients with long-standing gonorrheal infection, and those having both ovaries thoroughly riddled with cysts.

REPEATED EXTRA-UTERINE PREGNANCY.

Varnier and Sens[2] present the following conclusions derived from the study of 65 reported cases of repeated extra-uterine pregnancy, in 36 of which the diagnosis was established absolutely by the finding at the operation of either the fetus, chorionic villi or decidua.

(1) Repetition of an extra-uterine pregnancy is much more frequent than is at present recognized. It ought to be made a most important factor in the prognosis as to continued health which is made in these cases, for there is a distinct tendency to repetition in this disease.

(2) This recurrence almost always takes place in the opposite tube, it having been noted in the same tube only once in the 65 cases. In 43 cases of recurrence in which mention is made of the tube which was the seat of the first attack, we find that this first pregnancy involved the left tube 16 times and the right tube 27 times.

(3) The time which elapsed between the first and second pregnancy is noted in 56 cases; the time noted, however, being generally that which elapsed between the first and second operations for the condition, and varying between six weeks and twelve years.

(4) In only 6 out of the 65 cases did a normal pregnancy intervene between the ectopic pregnancy and its recurrence. Only 3 times did this intercurrent normal pregnancy go on to full term; in the 3 others a miscarriage occurred.

(5) There seems to have been a tendency on the part of the recurrence to follow the same type with reference to location, method of evolution, etc., as the first attack. In a number of cases both ectopic pregnancies went on to an advanced period, in close resemblance to normal pregnancies, without pain, hemorrhage or peritonitis, until false labor, with retention or expulsion of the dead fetus, established the diagnosis.

(6) In regard to the few reported cases in which ectopic pregnancy is alleged to have occurred three times in the same patient, a careful analysis fails to show that in these cases the diagnosis has been established beyond question, although it is not impossible for such a case to occur, as it has been demonstrated that ectopic pregnancy may take place twice in the same tube, even when the tube has been ruptured the first time.

(7) Leaving out of account, however, the very exceptional cases in which the same tube is twice affected, the fact remains established that when ectopic gestation has occurred in one tube, there is a distinct tendency to its recurrence on the opposite side; and the question must be asked: What is the analogous condition of the tubes which predisposes them to become the seat of ectopic pregnancies? One is led naturally to believe that the tubes successively affected present some identical predisposition, either congenital or acquired, which might be discovered by a careful examination of the unaffected tube at the laparotomy performed for the relief of the first attack. Unfortunately, however, the shortness and inaccuracy of the reported observations renders the establishment of any generalization upon this point difficult. In an effort to analyze the reported cases with regard to this question, the writers are able to get some facts of value, and their conclusions follow:

(1) In 51 cases in which the previous history is given, 40 concerned multiparæ and 11 nulliparæ. We have, then, 11 cases in which the genital organs have been abnormal in function from the first. This abnormality was repeated by a recurrence of the same sort in 2 out of the 11; in one of them, that of Duff, an abortion at nine weeks intervening between the 2 ectopic pregnancies. In 2 of these women, after five and seven years of sterile married life respectively, ectopic pregnancy occurred in both tubes successively. It is in cases such as this that Freund's hypothesis of "bilateral arrest of development of the tubes preventing the descent of the fecundated ovum, and arresting it in one of the infantile sinuosities of the oviduct," appears reasonable.

But of the 7 cases of this group in which two laparotomies were performed, in only 1, that of Boisleux, was the condition of the non-gravid adnexa noted during the first. In Boisleux's report he states that "the tube and ovary on the left side appeared normal."

Brosin, who did not examine the condition of the opposite adnexa at the first laparotomy, but did examine the specimens removed, states his opinion that in his case it was improbable that the second ectopic pregnancy was in any way due to the conditions resulting from the first,— at least there were no adhesions found, either to the parietal incision, to the pelvic wall, or to the viscera. He found abnormal sinuosities and complicated windings of the lumen of the first tube below the dilated portion, and is inclined to the belief in a congenital cause for both pregnancies. There is so little evidence on this point that the importance of careful observation of the non-gravid tube at a laparotomy for this condition in a multipara is evident, and such observation ought to be practiced in every case.

[2] Ann. de Gynak. et d'Obstet., March, 1901.

(2) In case of recurrent ectopic gestation in women who have previously gone through normal pregnancies, we are led to think of changes resulting from puerperal peri- or endo-salpingitis arresting the descent of the ovum. In these cases note of the condition of the opposite tube was made only 8 times, and in 2 of these the statement is made merely that the tube was "diseased." Falk found at his second laparotomy he had to deal with bands and sheets of old adhesions resulting from the first operation, and is inclined to attribute to these a causative relation to the second attack.

Lindblom operated in 1896 upon a woman who had had five normal pregnancies, followed in 1895 by a retroflexion, endometritis, and right oöphoritis for which vagino-fixation was performed. At the laparotomy the tube and ovary were found surrounded by firm adhesions, which confirms the hypothesis that pathological conditions of the tube are a frequent cause of abnormal implantation of the ovum.

In the six other multigravidæ, where the opposite tubes were examined, they were reported healthy. It seems not improbable that the adhesions due to the organization of the exudate about the tube removed at the first operation may be the cause of the second pregnancy. To those who object that ectopic gestation does not follow removal of a single tube and ovary for other causes, the reply is made that such operations are done either for a simple ovarian cyst, in which practically no peritubal adhesions on the opposite side would result, or a salpingitis, in which lesions of the mucosa on the side preserved would prevent impregnation.

On the other hand, the statement that the opposite tubes were found "healthy" at the first operation does not prove much, for the reason that alterations of the mucous membrane, or an occlusion, might escape such observation. As to endosalpingitis, many authors consider it incompatible with impregnation, and Bland Sutton makes the paradoxical statement that a healthy tube is more likely to become impregnated than one which has been inflamed. Others (Boldt, Martin, Dührssen) state that a catarrhal endosalpingitis, if of slight character, favors the occurrence of ectopic gestation.

The writers, in conclusion, call attention to the real poverty which prevails amid the apparently rich store of observations which have been accumulated of recent years, and urging the attention of future observers to the undecided points.

(To be continued.)

BETWEEN 1892 and 1894, inclusive, according to the *Philadelphia Medical Journal*, there were 1,475 deaths from cholera, while the number of deaths from tuberculosis during the same period reached 10,650. The annual mortality from tuberculosis all over Russia is between 360,000 and 450,000, while the number of persons affected with the disease is estimated at 2,000,000 to 2,500,000.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SIXTEENTH ANNUAL MEETING, HELD AT WASHINGTON, D. C., APRIL 30, MAY 1 AND 2, 1901.

(Concluded from No. 23, p. 564.)

SECOND DAY.

STUDY OF BUBONIC PLAGUE.

DR. FLEXNER considered the pathology of this affection. He said that the glandular enlargements could not be mistaken for those occurring in any other disease. The bubonic condition is characterized by a peculiar hemorrhagic edema, which is not limited to the gland, but involves its surrounding tissues for some distance, and shows numerous foci of necrosis. The enlargement is due to multiplication of the cells normally present in the gland, in addition to the edema, and to the enormous growth of bacteria, which is greater than in any other disease, with the possible exception of the skin lesions of leprosy. The necrosis is due to the presence of toxins and bacilli in the blood vessels.

The pneumonia is usually lobular in character, and the exudate contains enormous numbers of the bacilli, making up a very considerable part of the material which fills the alveoli, and produces the consolidation. The changes in the spleen are those of acute splenic fever, and the organ is enlarged occasionally to five times its normal size.

He said that he expected to hear soon that plague has disappeared from San Francisco, and that the statement, when received, will be reliable, in that it will be based upon bacteriologic demonstration; for the city and State authorities, acting with the United States Government, have carried out the recommendations of the commission for the erection of a public mortuary, and for the establishment of a retention camp, in which suspected cases will be kept under observation.

DR. STERNBERG, in the discussion, attributed the very prompt suppression of the San Francisco epidemic to the fact that there were on the spot trained bacteriologists, with laboratories at command, who promptly recognized the disease. He referred to the conditions existing twenty-five or thirty years ago, when a most serious epidemic would have most probably followed the entrance of a case into this country.

DR. PARK related the history of two cases of plague which recently entered the port of New York on a coffee-ship. They were of a mild type; both got well, and no other cases followed.

DR. VAUGHAN reported a case occurring at Ann Arbor, where a student, working with Dr. Novy's cultures in the laboratory, infected himself. The student was promptly isolated, together with those of his associates who had been near him; his room was disinfected, and the laboratory closed. The patient's condition became very serious, and required the most vigorous use of the antiplague serum. Recovery followed.

DR. DOCK exhibited the temperature chart of this case, and explained its clinical history. It was of the pneumonic type, and the more acute stage was followed by a prolonged heart weakness.

DR. BARKER congratulated the Ann Arbor physicians on their prompt recognition of this case, and upon their successful efforts to prevent an epidemic, as well as their saving the patient. He added, that probably all cases of plague are contagious, and that attendance upon such cases, and the making of autopsies, are both attended by a certain amount of danger. Patients with the pneumonic type of plague should have their mouths covered by a fine veil, and anyone going near them should cover his own mouth and nose with a fine sponge.

DRS. WALTER REED and JAMES CARROLL, U. S. Army, read papers on

EXPERIMENTAL YELLOW FEVER.

DR. REED gave a detailed account of his recent work in yellow fever, adding the histories of a number of cases not heretofore recorded. As in the first instances, however, they show very definitely that the poison of yellow fever is carried in the circulation, and can be transmitted from one person to another by mosquito inoculations, or by direct transmission of the blood hypodermically.

DR. STERNBERG, in the discussion, referred to the importance of these demonstrations, which have made clear a number of facts that have heretofore seemed contradictory. For instance, ships arriving from Havana, without any cases of yellow fever aboard, would be unloaded by stevedores, a number of whom would soon develop the fever. It is now clear how they succeeded in disinfecting such ships by sulphur dioxide. The burning sulphur destroyed mosquitoes hanging about on the ship's timbers; whereas, it could not have produced disinfection if it were necessary to penetrate the cargo. This work also explains how yellow fever was contracted from passing ships, with which no communication had been held.

DR. STERNBERG referred to his own work in the effort to determine if there was anything in the blood of yellow fever patients that would give the disease to others, and said, that now that the intermediate host had been discovered, he hoped it would not be long before the parasite itself was isolated.

DR. WELCH congratulated Dr. Reed on the success of his experiments, and called attention to the American soldiers who had so nobly assisted the work by submitting themselves as experimental subjects, saying that they deserved to be known in the history of the army and in medical circles as true heroes.

DR. JAMES EWING, of New York, reported

A CASE OF MALARIAL NEPHRITIS, WITH MASSING OF THE PARASITES IN THE KIDNEY.

Microscopical examination of the kidneys of fatal cases of malaria yielded evidence of three main types of acute renal lesions occurring in this disease: (1) Acute degeneration of toxic origin, often reaching a degree in which exudation of blood serum into the tubules is added, is responsible for the vast majority of the cases of albuminuria in malaria; (2) an extreme form of acute degeneration with focal necroses, which is seen in cases of hemoglobinuric malarial fever; (3) massing of parasites in the renal capillaries with extreme degeneration of parenchymatous cells, hemorrhages and exudation into the tubules. This is seen only in severe estivo-autumnal infections.

DR. WALTER B. JAMES, of New York, read a paper on

SEPTIC INFECTION THROUGH THE STOMACH AND DUODENUM.

It is generally assumed that septic poisoning rarely takes place through lesions of the stomach and duodenum. Influences that operate against such are the inhibiting effect of the gastric contents upon bacterial growth, and the effective protective mechanism supposed to reside in the liver and to operate upon such elements as find their way into the portal stream. The author was led to inquire into the subject through the occurrence in his practice of several cases in which the clinical picture, and in some instances the results of the post mortem, pointed to the existence of septicemia, where it seemed probable that the portal of entry for the infecting organisms had been lesions of the stomach or duodenum. Dr. James reviewed the recent work to show that the evidence proves that the stomach and duodenum practically at all times contains large numbers of bacteria that are taken with the food, and are in an active state capable of exerting their peculiar influences and producing a septic condition should a solution of continuity take place in the mucous membrane. Illustrative cases were given to show that severe and even fatal septicemia may have its starting point in an ulcer or similar erosion in the mucous membrane of the stomach.

DR. KINNICUTT said that he had long believed and taught that the fever so frequently noted in ulcer and cancer of the stomach is the result of infection from the gastric lesion. Another observation which tended to confirm this opinion was the presence of some of the less grave conditions of infection, such as suppuration of the parotid and other glands occurring in ulcer cases.

DRS. J. H. MUSSER and N. B. GWYN, of Philadelphia, reported

TWO CASES OF STREPTOTHRICAL INFECTION: (1) BRONCHOPNEUMONIA; (2) ABSCESS OF THE BRAIN.

The first case was one of bronchitis of several weeks' duration, due to a mixed infection and terminating in bronchopneumonia. The sputum showed micro-organisms having the characteristics of streptothrix, and also of the branching forms of tubercle bacilli. Inoculations and cultures did not show them to be tubercle bacilli.

The second case was that of a young man in whom the clinical features of tuberculous tumor of the brain and meningitis were present. There were no localizing symptoms. The patient had epileptic convulsions, and after an illness of one week died in coma. The spinal fluid was negative. At the autopsy a small abscess was found in the frontal lobe, which contained foul pus, in smears of which the streptothrix was found.

Dr. Flexner referred to a case similar to the first one which he had reported a few years ago from the Johns Hopkins Hospital. That case also strongly resembled tuberculosis, but the streptothrix was found on examination.

Dr. Abbott remarked that he had also encountered these organisms, and found some difficulty in distinguishing the condition from tuberculosis.

Dr. McPhedran gave an

EXHIBITION OF A URINARY SPECIMEN.

The specimen was obtained from a neurasthenic patient and was of a dark blue color. Chemical examination showed the coloring matter to be an indigo.

Dr. E. Trudeau presented a

REPORT ON A CHEMICAL STUDY OF THE TUBERCLE BACILLUS.

An assistant of Dr. Trudeau's recently started a chemical analysis of the tubercle bacillus and obtained some very interesting results. He found the organism to be composed of about 30% of wax, which is undoubtedly the part which takes up the stains. The outside coating consists of cellulose, and he also found three proteids from which he separated a nucleic acid. A coloring matter of light pink shade was obtained, and he was inclined to believe that the products of the nuclear proteid are the active portions of the organism. A glycogen was also isolated from the bacillus.

Dr. Vaughan described a

NEW FORM OF INCUBATOR.

devised for the purpose of cultivating enormous quantities of bacilli for chemical study.

AFTERNOON SESSION.

This session was called to order by the vice president, Dr. Wolcott.

Dr. Wm. A. Park, of New York, read a paper entitled

TO WHAT EXTENT IS URINE A SUITABLE SOIL FOR BACTERIAL GROWTH.

As the result of numerous tests it was found that the best growths occur in the neutral or slightly acid urines, but still there are certain urines that, without regard to the reaction, will not permit the growth of any bacteria. An effort was made to determine the amount of acid or alkali production by the bacteria. The colon bacillus made some alkali in albuminous urines. The staphylococci made more in diabetic urines, but the proteus made by far the most, changing some decidedly acid urines in a few hours into alkaline solutions. The practical bearing of this seemed to be that treatment might be aided in certain infections by keeping the urine decidedly acid.

Dr. F. P. Kinnicutt, of New York, read a paper on

ORCHITIS COMPLICATING TYPHOID FEVER.

Osler observed this complication in only 2 of his first 800 cases of typhoid, and Dr. Kinnicutt reported 2 cases occurring in 889 typhoid cases at the Presbyterian Hospital. Of the cases collected by Eshner, 35 occurred during the period of convalescence, and of these 13 went on to suppuration. Six presented on examination the Eberth bacillus, and only 1 the presence of any other pyogenic organism. Dr. Kinnicutt concludes that it is a rare complication of typhoidal origin, which develops late in the disease or during convalescence, and terminates usually by resolution. Suppuration occurs in 25% of all cases. Atrophy of the testicle is a rare sequence and death has not been noted.

Drs. Osler, Shattuck, Musser, Williams and Baumgarten all reported recent cases of this complication observed in their practices.

Dr. F. H. Williams, of Boston, presented

NOTES ON THE TREATMENT OF SOME FORMS OF CANCER BY THE X-RAYS.

He stated that the risk of producing burns is greater when using the x-rays for therapeutic than for photographic purposes, and their caustic action should be carefully guarded against. The cases he reported have all been examined by pathologists first to determine their cancerous nature. They consisted of epithelioma of the lid and hand and rodent ulcers. The cosmetic results were excellent. The treatment sometimes only requires a few exposures, and it can be conducted without the patient leaving off his usual occupation. The difficulties are that the apparatus is quite expensive and the treatment sometimes prolonged.

In reply to questions from Drs. Bond and Peabody he said he believed it was the x-rays and not the cathode rays which possessed therapeutic value, and that the interposition of a cloth or any penetrable substance between the patient and the tube made no difference in the action of the rays.

Drs. F. A. Packard and J. D. Steele, of Philadelphia, reported cases of

OSTEITIS DEFORMANS.

Dr. Packard analyzed the 67 cases from literature, showing the preponderance of this affection among males and its greater frequency in old age, together with the comparative infrequency of association with malignant tumors as contrasted with the usual text-book statements. He reported a case with the characteristic changes described by Padgett.

DR. WM. OSLER, of Baltimore, read a paper on

THE SPINAL FORM OF ARTHRITIS DEFORMANS.

He thought we should recognize clinically three different grades of this disease: (1) The form occurring in young children, characterized by enlargement of the spleen and lymph glands; (2) the form in adults characterized by atrophic changes; and (3) the more characteristic form with the well-recognized changes of the disease. Sometimes all the joints of the body are involved, and sometimes only a certain set of joints. He referred to one case in his care where only the feet and hands were involved.

He gave particular consideration to the form in which the spinal column is chiefly involved, and which has raised the question whether some of these cases are not due to diseases of the nervous system. He did not believe they were separate and distinct diseases, but looked upon them as a variety of arthritis deformans, differing only from the other types in involvement of the spine itself, some ligamentous tissue, and the posterior spinal nerve roots.

DRS. STOCKTON and LAMB exhibited

SKELETON SPECIMENS,

showing the bone changes, ankylosis, etc., that results from this affection.

DR. B. SACHS read a paper describing

CERTAIN TROPHONEUROSES AND THEIR RELATION TO VASCULAR DISEASE OF THE EXTREMITIES.

He reviewed a special group of trophoneuroses, heretofore generally believed to be due to changes in the nervous system, but in which careful examination of some cases had shown the trouble to have arisen in disease of the vessels rather than the nerves.

DR. J. J. PUTNAM, of Boston, gave

PERSONAL EXPERIENCES IN CASES OF JACKSONIAN EPIPLESY,

with special reference to the question of treatment by operation.

He considered this form of epilepsy to be the only one that warrants surgical intervention, and he advises it, although neurologists are more conservative on that point now than a few years ago. A focal lesion is not always found, but even in such cases operation frequently does good, perhaps through production of an inhibitory effect and the breaking of a vicious circle.

DR. F. FORCHHEIMER, of Cincinnati, read a paper on

THE HEREDITY OF APPENDICITIS.

The author reviewed at length the history of several families, and exhibited genealogical charts to show the number of cases occurring in certain families and their evident inheritance. The report was quite convincing, and in discussing the paper, DRS. BLACKADER and JACOBI reported other cases to show a similar family relationship.

THIRD DAY.

DR. E. L. TRUDEAU, of Saranac Lake, N. Y., read a paper on

THE IMPORTANCE OF A RECOGNITION OF THE SIGNIFICANCE OF EARLY TUBERCULOSIS IN ITS RELATION TO TREATMENT.

He reviewed the history of his work at the sanitarium and the work of others to show that tuberculosis placed under treatment in its incipiency will give about 75% of cures; whereas, if these same patients were allowed to waste their opportunities for treatment until the disease is well advanced, a fatal outcome or a prolonged illness is almost certain. He laid particular stress upon carefully investigating every case that shows a persistent, though irregular, afternoon rise of temperature of one-half degree or more. His experience has shown that the vast majority of patients seeking entrance to sanatoria apply too late to secure the best results, and he begged physicians in general to investigate their suspicious cases more closely, and to inform such patients of the nature of their disease so that they might secure proper treatment.

DRS. J. G. ADAMI and J. MCCRAE, of Montreal, read a paper on the

STUDY OF A SERIES OF CASES OF BURNS.

This experimental work agreed in every particular save one with that published by Bardeen, of the Johns Hopkins Hospital, several years ago. The authors did not find focal necrosis with the same regularity that Bardeen did, but the lesions were in all other respects similar to those of toxin infections.

AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-SECOND ANNUAL MEETING, HELD IN BALTIMORE, MD., MAY 7, 8 AND 9, 1901, THE PRESIDENT, DR. ROSWELL PARK, OF BUFFALO, N. Y., IN THE CHAIR.

FIRST DAY.— MORNING SESSION.

IMMEDIATELY after calling the meeting to order a short executive session was held, and then the scientific business was begun.

The president read his annual address, entitled

SOME PHASES OF THE CANCER QUESTION,

and stated that pathologists, who study the condition purely from the dead-house point of view, have confronted some of the greatest problems which it has to offer, but have also missed some of its most important aspects. The parasites of cancer, be their nature what it may, are in all probability polymorphic in extreme degree, and masquerade under many forms, changing with their different stages of reproduction. There is no other disease which is characterized by metastasis in which the pathologists decline to see evidences of parasitism. Every metastasis of cancer

has the form and significance of an inoculation experiment only performed under the most favorable, because natural, conditions. The primary question, after all, is the general one of parasitism, but it has not yet been reduced to a question of just what parasite. In the author's opinion, it may and probably will be found that cancer is not a question of any single organism, and possibly not even of a single class. The latest work of Roger Williams was then quoted at some length and reference was made to Demarquay, who collected 134 cases of cancer of the penis, whereas in only one instance was the wife affected with uterine cancer. Numerous cases are now on record of cancer along the track of the trocar used in tapping for ascites due to cancerous disease, and surgeons now quite generally admit this traumatic dissemination of the disease by inoculation of wounds during operations. From studies already made in the New York State Laboratory, it seems to be clear that death in cases of cancer comes about, as in so many other diseases, by a sort of terminal infection, which is a conspicuous feature of the disease, and has not hitherto attracted sufficient attention. The exact nature of these terminal changes has not yet been made out beyond what is implied in the term "hematogenous." The predictions of the Italians have failed in many respects, and it is by no means so easy to successfully inoculate animals with the yeast as has been generally supposed. By comparing tumors removed by operation with those removed post mortem, it became evident that the organisms either increased rapidly during the period just before death, or that they proliferate in the tissue immediately after death. In practically all scrapings from cancer could be seen either small hyaline refractive forms, which in suspension possess a characteristic oscillating motion, or larger forms with projecting pseudopodia, or sacular forms containing very refractive spherical bodies.

The work of Dr. Gaylord in association with the author was then referred to at considerable length, and reference was made to a number of publications by these gentlemen on this subject. It was mentioned that considerable difficulty is added to the work of investigation by the extraordinary polymorphism of many of the minute organisms found in cancer. Plimmer's work was referred to to a considerable extent, and deductions drawn therefrom. It appears that the protozoa are capable of producing in man lesions of widely different nature from mere infection of epithelium, and Pfeiffer has shown that they might produce them both in man and in animals. A full report was promised in a short time of the results of inoculating 72 animals with the technique employed.

Pfeiffer's work was quoted from at some length and various deductions were drawn therefrom.

That cancer begins as a purely local infection has been verified by the recent report by the author in the Laboratory at Buffalo, and also that it kills by becoming generalized, which is equally true of tuberculosis. Miliary carcinomatosis is not much more rare than miliary tuberculosis, and these constitute apparent exceptions to the above rule, but even they do not prove that the disease did not have a local beginning.

The author concluded his paper by stating, "I want to make it as evident as possible that carcinoma is an epithelial infection."

Dr. Thomas S. Cullen, of Baltimore, gave a lantern-slide exhibition of

THE EARLY SIGNS OF CARCINOMA OF THE UTERUS.

Dr. W. S. Halsted, of Baltimore, made a few remarks on a

BRIEF CONSIDERATION OF THE CASES OF CANCER OF THE BREAST TREATED AT THE JOHNS HOPKINS HOSPITAL SINCE 1889.

He spoke of the difficulties of getting a good picture of cancer, and stated that drawings are made in every case to file away with the records. He reported having operated on 320 cases of carcinoma of the breast and 450 cases of breast tumor, as well as 3 cases of primary sarcoma of the breast. Intracanalicular myxomata and fibromata are often spoken of as sarcoma, but in Dr. Halsted's opinion they are not. He referred at great length to the difficulty of compiling statistics, and demonstrated the method of grouping the cases at the Johns Hopkins in order to arrive at the proximate results. His experience is that the percentage of recurrences is very variable, and he reported that out of 129 cases operated upon 51 had been cured.

Dr. W. B. Coley, of New York, read a paper entitled

LATE RESULTS IN INOPERABLE SARCOMA TREATED WITH THE MIXED TOXINS,

and stated that he had secured the best results in cases of the spindle-cell variety. His results in the round-celled sarcoma have been fair, and sufficient to warrant further work along this line. The risks are *nil*, and out of 200 cases treated only 2 have died. He advised the use of the toxins in inoperable tumors only, and practically in sarcoma only. He reported no success in melanotic growths; but in lymphosarcoma of the neck, which are practically hopeless from an operative point of view, the toxins have a remarkable inhibitory effect. Out of 21 cases of spindle-cell sarcoma, 10 disappeared entirely, and 15 cases have passed the three-year limit, while eight years have elapsed in some cases since treatment. The author went into detail concerning a number of the cases in which the toxins were used, and stated that of the 15 who had passed the three-year limit 8 were of the spindle-cell variety and 2 were of the parotid gland. The results thus far, in the opinion of the author, are sufficient to warrant the use of the toxins when operations cannot be tried, and even in carcinoma they seem to have a marked inhibitory influence.

Dr. Joseph D. Bryant, of New York, read a paper entitled

THE INFLUENCE OF MENTAL DEPRESSION ON THE DEVELOPMENT OF MALIGNANT DISEASE,

in which he dwelt at length on the history of cancer as affected by mental depression. Paré, in 1510, was the first man to refer to mental perturbation, anger, and the like, as making a cancer "more fierce and raging"; while the same authority, under the head of treatment, insists that the patient must eschew fasting, watching, sorrows, cares and mourning. Sir Astley Cooper was of the same opinion, while Velpeau thought otherwise. Grant and Napoleon have been referred to as examples of cancer following reverses, and Paget and Virchow gave a qualified allegiance to the passive side of the question.

The foundations of the different phases of the contention rest on the beliefs (1) that cancer may result from the direct influence of mental depression; (2) that cancer may arise indirectly from mental depression because of the defective nutrition attendant upon it; and (3) that mental depression exercises in no respect influences that admit of sufficient proof to warrant serious discussion.

The author referred to the infrequency of cancer in insane patients, and stated that females suffered twice as often as males. Statistics were given from a number of institutions which showed that the death rate in the female was nearly double that of the male, although there were more male melancholics; but melancholia in the male does not seem to exercise any distinctive effect on the death rate. Neither is melancholia in the male more often associated with cancer than with other forms of malignant growths.

Many authors were quoted, and the following division of the cases was suggested: (1) Cases in which mental depression is not associated with the idea of cancer; (2) cases in which mental depression is associated with the idea of impending cancer of primary or secondary occurrence; and (3) cases in which the depression is the outcome of common causes.

AFTERNOON SESSION.

DR. J. COLLINS WARREN, of Boston, in discussing the foregoing papers, stated that there were several different ways of approaching the question as exemplified by different writers, and referred to the geographical, statistical, histological, experimental and blastomycetic. The experimental was divided into chronic irritation and inoculation, and reference was made to the fact that two papers had appeared during the year in favor of the protozoan theory of the disease.

Reference was made to the experiment of Lack in producing peritoneal cancer in a rabbit by scraping the ovaries, which observation, so far as known, has not been confirmed by other observers.

DR. CULLEN closed the discussion on his paper by stating that he had been very much interested in the report of the laboratory work at Buffalo. He commented at some length on Dr. Gaylord's experiments there, and made some reference to the lantern-slide picture shown by himself this morning.

DR. PARK stated that he had not told one-half of what he would like to tell, but promised another paper in a short time by Dr. Gaylord and himself, setting forth more fully the work that has been accomplished, particularly along the lines of inoculation.

DR. J. C. BLOODGOOD, of Baltimore, read a paper on

BLOOD EXAMINATION AS AN AID TO SURGICAL DIAGNOSIS,

illustrated by a large number of tables and statistics.

DR. J. C. DACOSTA, JR., read a paper entitled

THE CLINICAL EXAMINATION OF BLOOD IN APPENDICITIS: A STUDY BASED ON THE EXAMINATION OF ONE HUNDRED AND EIGHTEEN CASES IN THE GERMAN HOSPITAL, PHILADELPHIA.

The author discussed the subject under the heading of (1) methods and technique, (2) classification, and (3) the anemia of appendicitis. The details under each one of these headings was discussed at great length, and a large number of blood counts were given, both actual and comparative.

DR. J. B. BLAKE, J. C. HUBBARD and R. C. CABOT, of Boston, read a paper on

BLOOD EXAMINATION IN RELATION TO SURGICAL DIAGNOSIS,

and divided the subject into six headings: (1) The Leucocyte Count in Fractures; (2) Post-operative Leucocytosis; (3) Ether Leucocytosis; (4) the Effect of Fear on the Leucocytes; (5) Regeneration of the Blood after Operations on Malignant Tumors; and (6) Blood Examinations in Relation to Intestinal Perforation in Typhoid Fever.

DR. J. CHALMERS DACOSTA and DR. J. L. KALTEYER, of Philadelphia, read a paper entitled

THE EFFECT ON THE BLOOD OF ETHER AS AN ANESTHETIC.

The paper reviews the rather meagre literature of the subject, dwelling particularly upon the writings of Miculickz, J. Chalmers DaCosta, Oliver, Hamilton Fish, Bloodgood and others.

They dwell on the great difference of opinion which exists as to whether or not ether causes blood destruction. They hold that it does, and that those who affirm the contrary have been misled by the blood concentration which results from the preliminary treatment, and which is often added to by sweating during the anesthetic state. This blood concentration may mark the fall of hemoglobin; in fact, in some cases will cause an apparent rise. The important facts to note are that the color index practically always falls, and that the number of corpuscles increases. These facts prove marked blood destruction and increased production of corpuscles deficient in hemoglobin resulting from ether anesthesia. The authors report upon 50 cases, in which blood

examinations were made, and subdivide these cases into numerous tables for purposes of examination and comparison. In 49 of the cases the color index was lowered. The writers also showed sections of the marrow of a rabbit's femur, the animal having been etherized to death. These sections show marked erythroblastic proliferation.

The authors conclude that the hemoglobin is absolutely reduced after the administration of ether, this reduction being manifest in the individual corpuscular hemoglobin value. The increased hemolysis which occurs is nature's effort to rapidly replace the destroyed corpuscles and the regenerated cells are imperfectly supplied with hemoglobin. The authors urge that whenever possible one or two blood examinations should be made before ether is administered, and these examinations should be made before preparatory treatment has been instituted. If less than 50% of hemoglobin is present an anesthetic is dangerous, and should only be given in a surgical emergency which threatens life. In malignant disease a percentage of under 50 contraindicates operation. Miculickz says no general anesthetic should be given under any circumstances if the hemoglobin is under 30. We believe that 40% is probably the lowest justifiable limit. If operation must be performed when the hemoglobin is under 40%, a local anesthetic should be given, except under stress of absolute necessity. It is true, cases with under 40% of hemoglobin are occasionally etherized successfully (for instance, we know of one case with only 24%); but such instances are rare, are not sufficiently numerous to set aside the rule, and are only justified by the imperative necessities of a vital emergency. Whenever the percentage of hemoglobin is less, the administration of the anesthetic should be entrusted only to an experienced man; as little ether as possible should be given; the surgeon should operate quickly, and prompt measures should be adopted to bring about reaction and to remove the ether from the lungs and blood.

EXAMINATION OF THE BLOOD IN RELATION TO SURGERY OF SCIENTIFIC VALUE, BUT TOO OFTEN OF NO PRACTICAL VALUE, AND MAY MISGUIDE THE SURGEON,

was the subject of a paper read by DR. JOHN B. DEAVER, of Philadelphia. The author referred rather fully to the subject of appendicitis, and commented on the value of the microscope in bedside diagnosis, but objected to so much importance being attached to it as compared with the amount of weight given to other diagnostic points, some of which possess, in his opinion, greater merit as aids to the surgeon.

DR. B. FARQUHAR CURTIS, of New York, in discussing the foregoing papers, commented on the frequency of leucocytosis following ether anesthesia, and stated that this was equally true in intraspinal anesthesia. He believed that operative leucocytosis should be looked upon as a fixed factor, and one which could not be used in determining the existence of infection. He referred to a case as illustrating his point, and stated that while he considered the fact one of great value, he did not think it more so than the temperature and pulse record.

SECOND DAY.— MORNING SESSION.

This session was held at the Johns Hopkins Hospital, and addresses were made by DRS. OSLER and WELCH. Demonstrations were also given by DR. KELLY in the employment of the newer methods of diagnosis in rectal and urinary disease, and by DR. YOUNG in catheterization of the male urethra. Dr. Osler's remarks referred to the clinical and Dr. Welch's to the laboratory methods of teaching employed at the Johns Hopkins.

DR. OSCAR H. ALLIS gave a

DEMONSTRATION OF FRACTURES OF THE PELVIS.

He demonstrated upon the cadaver the effects of violence directed against the pelvis through the medium of the femur, being a comparative study of the relative strengths of the neck of the femur and that of the pelvis. The application of force was by means of a lever driving the head of the femur against the acetabulum, directed (1) at right angles to the long axis of the trunk, and (2) parallel to the long axis of the trunk.

AFTERNOON SESSION.

DR. A. W. MAYO ROBSON, of Leeds, England, read a paper entitled

PANCREATITIS WITH ESPECIAL REFERENCE TO CHRONIC PANCREATITIS.

The author commented on the fact that he thought it strange it had not until recently dawned on the minds of clinical observers that whatever obstructs the common bile duct at its lower end must also of necessity lead to an obstruction in the pancreatic duct. When the common bile duct is obstructed, the objective signs of jaundice at once demonstrate the fact; but hitherto no pathognomic sign has been discovered which will show conclusively that the pancreatic ducts are occluded, unless it be the extremely rapid loss of weight. When it is borne in mind that the prancreatic duct opens along with the common bile duct into the second part of the duodenum, it is not a matter for surprise that pancreatitis should be met with. The essential and immediate cause of the various forms of pancreatitis is bacterial infection, which has been positively proved both clinically in the human subject and experimentally in the lower animals. The association of gall stones with chronic pancreatitis was absolutely forced on his mind by the frequency with which he found inflammatory enlargements of the head of the pancreas when operating for gall stones in the common duct.

Taking up the subject of fat necrosis, it was stated that this condition is commonly found in association with pancreatitis, and the relationship

between the two conditions has given rise to much speculation.

Hemorrhage in pancreatic diseases was dwelt upon, and it was mentioned that death from collapse may occur either immediately or some hours after spontaneous hemorrhage. Several illustrative cases were cited, together with the symptoms and results, the following conclusions being reached: (1) that in certain diseases of the pancreas there is a general hemorrhagic tendency, which is much intensified by the presence of jaundice; (2) that hemorrhage may apparently occur in the pancreas unassociated with inflammation, or with jaundice, or with a general hemorrhagic tendency; (3) that both acute and chronic pancreatitis can and do frequently occur without hemorrhages; and (4) that some cases of pancreatitis are associated with local hemorrhage. It was suggested that pancreatitis should be divided into the acute, subacute and chronic, and that the hemorrhagic be considered a variety of the acute. The glycerine set free in the tissues by the fat necrosis was looked upon as a possible cause for the local hemorrhage, and some details on this point were gone into. In addition, the results of blood examinations, with a view of discovering, if possible, the cause of the hemorrhagic tendency, were given.

The treatment of the three stages of the disease was then discussed fully and examples given of each, together with the results of treatment, as well as of post mortems.

DR. GEORGE E. BREWER, of New York, stated that he believed the disease to be of far more frequent occurrence than is generally supposed, and in support of this assertion he cited the records obtained from the autopsy table, as showing its serious nature, frightful mortality and obscure symptomatology, as well as the fact that certain surgeons, as the author of the foregoing paper, have had a large personal experience with the disease, and where it has been extensively discussed a fairly large number of cases have annually been reported. The fact of its non-recognition by the profession at large is established by the fact that in other localities no cases are reported. He stated that in going over the recent annual reports of fifteen or twenty of New York's largest hospitals he found but one which recorded surgical treatment of the disease, and in this one institution four cases are reported as having been operated upon during a single year.

He believed the profession failed to recognize this disease more readily for two reasons: (1) Their attention has not been directed to it by reports of cases and monographs on the subject; and (2) sufficient data has not been collected on the subject for the compilation and presentation of an accurate and complete catalogue of the characteristic symptoms. He dwelt upon the importance of constant vigilance being maintained for this disease, and the value of recording and publishing the clinical histories and results of operations, together with the autopsy findings of all cases of this disorder coming under the surgeon's observation. This he felt would be of great value to the profession at large, enabling them to diagnose the condition much more readily. The anatomy of this region could be renewed with great interest, not only in regard to the clinical history and pathology of the disease, but might furnish some very valuable suggestions in reference to treatment. At a very early period in the development of the embryo, pancreas is formed by two offshoots from the intestinal tube, just below the gastric dilatation between the two layers of the posterior mesentery. These two branches rapidly develop, and again divide and subdivide, forming an innumerable number of fine twigs, each one ending in a small epithelial-lined sac. These are surrounded by minute plexuses of blood vessels, nerves and lymphatics, and held together by areolar tissue which divide the gland into a large number of segments or lobules. The further development of the pancreas was then discussed at some length, and the development of another outgrowth, which afterwards forms the liver, was noted. The different stages in the development of the bile duct and the two pancreatic ducts were recognized, and the fusion of the lower pancreatic duct with the bile duct, forming the ampulla of Vater, which opens into the duodenum in the adult subject, was remarked. He referred to the fact that the older anatomists taught that the upper pancreatic duct gradually atrophied, and only remained patent in a few instances; but later investigation resulted in the discovery that it could be injected from the main pancreatic duct in about 56% of the cases; and still later investigation by improved methods demonstrates the fact that the duct of Santorini is practically always present in the human subject.

He then presented five or six photographs furnished him by Dr. Carlton Flint, of the Anatomical Department of Columbia University, showing the arrangement and accessory in some of the lower animals as compared with those of the human body.

He then called the attention of the society to the fact that in the early stage of its development the pancreas is completely invested by the peritoneum, and only becomes a retroperitoneal organ by the absorption and conversion into areolar tissue and fat of the several layers of the posterior mesentery. The attention of the society was directed to the four different routes by which the pancreas may be reached; namely: (1) By dividing the gastrohepatic omentum just above the lesser curvature of the stomach; (2) by dividing the gastrocolic omentum just below the greater curvature of the stomach; (3) by dividing the transverse mesocolon; and (4) by reflecting the parietal peritoneum through a lumbar incision until the perirenal fat is reached, which is continuous with the areolar tissue surrounding the pancreas. He then mentioned the fact that in his opinion a probable causative relationship existed between an enlarged and relaxed duodenal orifice of the ampulla of Vater, due to the frequent passage of biliary calculi

and inflammatory diseases of both the bile duct and the pancreatic duct, stating that he based his opinion upon observations regarding the existence of like conditions in other portions of the body of ducts emptying into septic cavities in other portions of the body.

In concluding, he mentioned the probable digestive action of the pancreatic juice, when allowed to percolate into the connective surrounding the gland, as a cause of erosion of the blood vessels and extensive necrosis, in addition to the well-known power it possesses of producing fat necrosis.

Dr. Eugene L. Opie, of Baltimore, commented on the relation of gall stones to the disease under discussion. He considered that there are two mechanisms, which explain this association, due to the anatomical features of the region. As to acute hemorrhagic pancreatitis, he stated that a variety of irritating substances, when injected into the pancreas of animals, will produce this lesion, and referred to the experiments of Flexner, who had injected artificial gastric juice, acids, alkalies and dilute formalin, to prove the fact. Another cause of hemorrhagic pancreatitis he believed to be the penetration of bile into the pancreas, which will confirm the fact of the relation between pancreatitis and gall stones. It seems to be true that in the cases in which chronic interstitial pancreatitis accompanies gall stones in the common duct, the pancreatitis, which has been at times mistaken for malignant disease of the gland, is the result of this obstruction.

Dr. J. W. Elliot, of Boston, referred to the association of the disease with gall stones, together with the relation of jaundice to these conditions; while theoretically, if the common duct was not blocked, there would be no jaundice, yet practically, with stones only in the gall bladder, jaundice is frequently present. Cases were cited where these conditions were true, and where malignant disease had been diagnosed, although not present.

Dr. George R. Fowler, of Brooklyn, reported three cases with symptoms and treatment, two of which recovered, while the third died. He laid particular stress on the collapse which occurred in his cases, in one being so bad that operation had to be put off several times.

Dr. Carson, of St. Louis, gave the details of a case occurring in his practice, of induration of the pancreas associated with jaundice. After operation the patient made a good recovery.

Dr. W. L. Estes, of Easton, Pa., reported two cases of operation with recovery, one of chronic interstitial pancreatitis simulating carcinoma, and the other following an abdominal injury.

Dr. Leonard Freeman, of Denver, reported a case of jaundice, which he had believed to be due to gall stones, and stated it had not occurred to him that pancreatic disease was probably the cause, although he had no doubt such was the case.

Dr. Robson stated that he had never seen such marked and frequent attacks of collapse as those mentioned by Dr. Fowler. He reported one case where the collapsed condition of the patient had prevented operation, and death had ensued; and he believed that it was a common symptom, although not to the extent in individual cases observed by Dr. Fowler. He felt that the bile probably offered an explanation for many cases of hemorrhagic pancreatitis, and he believed the infected nature of the bile was often the most important factor. He referred briefly to Dr. Opie's specimens, and expressed himself as much pleased with Dr. Brewer's description of the anatomy of the region.

(To be continued.)

Recent Literature.

Thomas Sydenham. Masters of Medicine Series. By Joseph Frank Payne, M.D. (Oxon), Fellow and Harveian Librarian of the Royal College of Physicians. New York: Longmans, Green & Co. 1900.

This series contains, in addition to the present volume, John Hunter, William Harvey, Sir James Simpson, William Stokes, Sir Benjamin Brodie, Claude Bernard, Von Helmholtz, Vesalius; all Englishmen but three.

Sydenham's family was a Dorsetshire family, and in common with the well-to-do in that neighborhood its members were staunch Puritans and parliamentarians. His father, his uncles, his brothers and he himself were strenuous fighters for the Commonwealth. His oldest brother, Colonel Sydenham, who inherited the family property of Wynford Eagle, was one of the twenty persons, beside the regicides, named by the House of Commons, at the time of the Restoration, to be exempted from the benefits of the Act of Indemnity.

This little volume gives as full a sketch of Sydenham's life and character as can be had from existing and accessible materials, and at the same time throws vivid sidelights upon the important and stirring period of English history during which he lived. As a book, in common with others of this series, it is both interesting to read and useful to have.

Anatomie générale appliquée à la Physiologie et à la Médecine. Par Xav. Bichat, Médecin du Grand Hospice d'Humanité de Paris. Professeur d'Anatomie et de Physiologie. Première Partie. Pp. 256. Paris: G. Steinheil, Editeur. 1900.

This book is a reissue of Bichat's work, published as one of the volumes of the *Bibliothèque Positiviste*, and claims to be a reproduction of the edition of 1801, as regards orthography and punctuation. The book is naturally of interest to the student of the history of medicine, and to those who find profit in the presentation of gen-

eral facts in a philosophical spirit. It is always desirable that the work of the masters in natural science should from time to time be reprinted for the edification of later generations.

Consumption, Pneumonia and Their Allies. By THOMAS J. MAYO, A.M., M.D., Professor of Diseases of the Chest in the Philadelphia Polyclinic, etc. Pages 539. New York: E. B. Treat & Co. 1901:

This may fairly be called a picturesque book. The title itself carries a suggestion of belligerency, and the preface at once presents the author's ultimatum in the form of five propositions, which it seems worth while to quote in full.

(1) That pulmonary phthisis in the large majority of cases is primarily a neurosis, and that the pulmonary disintegration is secondary;

(2) That any agent, influence or condition which undermines the integrity of the nervous system will engender pulmonary phthisis, or some other form of pulmonary disorder;

(3) That the only remedies of value in the treatment of pulmonary phthisis are those which appeal to and act through the nervous system;

(4) That of special value in the treatment of phthisis is the counterirritant action of silver nitrate introduced hypodermically over the vagi in the neck;

(5) That acute pneumonia and other forms of acute pulmonary diseases are closely affiliated with disorders of the nervous system.

A further perusal of the book, however, shows that there is more reason in it than might be inferred. It presents evidence of great industry in the collating of cases having a bearing on the thesis, and the reader's interest must be stimulated by the suggestivenes of some of the evidence so ingeniously presented, even if at the end he still clings to the more commonly accepted theories of development. One feels that the author, if he had not tried to prove too much and had been less ambitious to see his views under the cover of a rather large volume, might have presented a very readable treatise. The outline of treatment is good, and in it the vaunted silver nitrate plays quite a subordinate part, as is doubtless right that it should.

The Feeding of Infants. Home Guide for Modifying Milk. By JOSEPH E. WINTERS, M.D., Professor of Diseases of Children, Cornell University Medical College. Pages vii, 47. New York: E. P. Dutton & Co. 1901.

This little book being, as stated in the title, merely a home guide for modifying milk, cannot be expected to give more than an outline of the principles of infant feeding. These, as far as they are given, are stated concisely and, on the whole, accurately.

Rules are given for the management of the dairy and for obtaining a clean, fresh milk. The author assumes that such an ideal milk is always obtainable, and gives no rules for pasteurization or sterilization, which he mentions only to condemn. As such ideal conditions are not always obtainable, and as pasteurization is therefore often a necessary evil, we feel that the author's position is a wrong one, and that the book would be improved if the method of pasteurization was described.

The author gives tables, based on a method of his own, for the preparation of modified milk at home from birth to one year. Tables showing the amount of food at a feeding and the intervals of feeding at various ages are also given.

The dangers of artificial feeding and the unsuitability of "infant foods" are clearly stated. This form of missionary work is extremely important and cannot be overdone. On the whole, this little book should be of much use to mothers and to many beginners in infant feeding, although it is decidedly rudimentary and adds nothing to our knowledge of the subject.

Diseases of the Heart. Their Diagnosis and Treatment. By ALBERT ABRAMS, A.M., M.D. (Heidelberg), F.R.M.S., Consulting Physician for Diseases of the Chest, Mt. Zion Hospital and the French Hospital, San Francisco. Chicago: G. P. Engelhard & Co. 1900.

The author somewhat disarms criticism by stating in the preface that "this little book was never intended to aspire to the dignity of a treatise on diseases of the heart," and states that "the primary object was to make it useful to the practical physician." He has undoubtedly compressed much information regarding the heart into its pages, which would, however, have carried more conviction if statements made in one place were not occasionally contradicted in another. For instance, on page 54 he speaks of the "small and irregular pulse of mitral stenosis," while on page 119 he says that it is "smaller in volume than normal, but regular"; and this is not the only instance. In an addendum he describes the "heart reflex," which is "practically a myocardial contraction consequent on irritation of the skin of the precordia by vigorous rubbing with the finger or, better still, by a spray of ether, and is manifest by the Röntgen rays and the fluoroscope." If corroborated, it will serve to explain the good results obtained in cases of dilated heart by the Schott method of treatment and by massage.

A Manual of Materia Medica and Pharmacology. Comprising all Organic and Inorganic Drugs, which are and have been official in the *United States Pharmacopœia*, together with Important Allied Species and Useful Synthetics. For Students of Medicine, Druggists, Pharmacists and Physicians. By DAVID M. R. CULBRETH, M.D., Professor of Botany, Materia Medica and Pharmacognosy in the Maryland College of Pharmacy, Baltimore. New (2d) edition. In one octavo volume of 881 pages, with 464 illustrations. Philadelphia and New York: Lea Brothers & Co. 1900.

This is a second edition of a book of decided value. The scope of the work has not materially changed over the earlier edition, and the original plan has been adhered to in the arrangement of

the comprehensive subject-matter, which is, as stated in the preface, "to associate as nearly together as possible those substances, organic and inorganic, which have a common or allied origin, allowing those next related to follow in regular order, the basal or parental source thus being kept paramount." Certain additions of new remedies and a fuller treatment of several departments of the subject, with an increased number of illustrations, are some of the changes in the new edition. The book is admirably printed, systematically arranged, and contains a vast amount of most important information.

Brubaker. A Compend of Human Physiology. Tenth edition. Philadelphia: P. Blakiston's Son & Co. 1900.

The use by a student of any short road to learning, such as a quiz compend, is to be regretted. Giving, as it should, only the outline of a science, the compend is of value solely as a review agent. But when a book is made to "represent the present state of the subject upon which it treats," it fails to be a help in review and acts as a shorter text book. As such the present work can not be compared in value with many of the text books in the market.

The present work, we are told in the advertisement, is "based upon the most popular text books." To even the uncritical reader it is evident that the book is not the systematic thought of one man. Although the work is in the tenth edition, the author has not taken sufficient care in systematizing the statements gathered from various sources. The indiscriminate use of the English and the metric systems of measures — the inch, the line and the millimetre, the gram and the ounce, Fehrenheit and Centigrave determinatives — tends to make the student unsystematic in his thinking.

Sensory and *sensitive* are not usually considered to be synonymous with the the term *pain*, as the author leads the reader to believe (see pages 83, 84, 183, etc). Figure 1 is unnecessary for a medical student and may be misleading to others. Space is lacking for a detailed criticism of the material contained in the work; but if an eleventh edition should be called for — the reviewer hopes it will not — the student might be informed (1) of the functions of the white blood corpuscles; (2) of the relation of the blood to the carrying of CO_2; (3) of the interchange of gases between the tissues and the blood, namely, internal respiration; and (4) of the view of Goltz and others regarding the functions of the cerebral cortex.

In the attempt to make the book "pocket size," while still retaining all the facts, the publishers have resorted to the use of small type.

Opening of New Wards at Newton, Mass., Hospital. — In recognition of the completion of the contagious wards of the Newton Hospital, a reception and inspection of the additions to the hospital's equipment was made last week.

THE BOSTON

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SOME STATISTICS OF CANCER.

Any facts bearing upon cancer in any of its aspects is of special interest at the present time, owing to the renewed zeal which is being manifested both abroad and in this country in the attempt to discover its cause. Now that the diagnosis of carcinoma may be made with practical certainty by means of the microscope, it is evident that statistics have a value and significance which could not be claimed for them a few decades ago. A paper by Dr. E. N. Nason, published in the *British Medical Journal* for May 18, 1901, on an analysis of 5,000 cases of death from malignant disease, is of unusual interest as a statistical study. The facts were collected in the course of preparation of a report for the British Medical Association on the influence of locality on the prevalence of malignant disease, and expanded with conclusions, for the purposes of the present paper. Dr. Nason found what we have come ordinarily to expect, that the preponderance of females over males as subjects of cancer was about 62 to 38%, due to the fact of the great frequency of uterine and breast involvement. The writer feels justified in looking upon the excess of female cases as dependent upon the fact that women are the possessors of these two organs, rather than as an indication of their generally greater tendency to cancer. If the sexual peculiarities of both sexes be excluded, the male is found to be the more often affected in the proportion of 53 to 47%. It furthermore appears that the steady increase of mortality from cancer which has occurred during the last thirty years, has been far more noticeable in men than in women. This is explainable in part by the greater accuracy of diagnosis of cancer in internal organs other than the uterus, to which men are as liable as women, and to the fact that surgical measures have reduced the mortality among women from the two most frequent varieties:

cancer of the breast and uterus. Men also are more exposed to the influences of trauma and syphilis, which Dr. Nason regards as important predisposing causes.

The general conclusions which the investigating committee reached are as follows:

1. Certain more or less well-defined areas exist in which the mortality from cancer is markedly above, and others in which it is markedly below, the average for England and Wales.

2. Although age and sex incidence undoubtedly influence this variation, in some cases considerably, they only account for a small proportion of it.

3. That owing to the great difficulty of diagnosis in many cases of internal cancer, the death-rate from cancer is probably at present underestimated.

4. Contamination of the soil or subsoil for long periods with decomposing organic matter is very probably a factor in the production of a high death-rate from cancer.

5. A damp, ill-drained, waterlogged soil of whatever geological formation, is more frequently associated with a high cancer death-rate than is a dry, well-drained soil.

6. There is abundant evidence of the existence of groups of houses in which cancer is found with marked frequency; and some evidence which tends to show that second and third cases occur in the same house with greater frequency than can be accounted for by mere coincidence.

7. Cancer occurs more frequently in old than in new houses and districts.

8. There is some evidence suggesting that under certain circumstances cancer may possibly be transmitted from one person to another in constant close association.

As some of the more certain predisposing causes are given: prolonged local irritation, the effects of direct and sudden injury, syphilis and possibly other constitutional diseases, the tissue degeneration of advancing years, and the presence of fetal remnants. As an exciting cause Dr. Nason thinks a parasitic organism would best explain the facts, but naturally, in the present state of our knowledge of this intricate subject he has no evidence of value to offer in support of this proposition.

We would commend this paper to those interested in collecting and tabulating statistics of this increasingly fatal disease. As in all statistics there are no doubt many sources of error, but it represents a type of laborious work which is of very great value in the solution of many vexed questions regarding the growth and spread of cancer.

ONE HUNDRED AND TWENTIETH ANNIVERSARY OF MASSACHUSETTS MEDICAL SOCIETY.

WITH venerable and increasing age the Massachusetts Medical Society shows no signs of decrepitude, no indications of waning vigor. On the contrary, its members are constantly increasing, and its work, as shown in its annual meeting just terminated, may easily challenge comparison with any period of its past history. The attendance has been large from all parts of the State, and the interest manifested in the general session, notwithstanding the absence of several papers which had been promised from different bacteriological laboratories, in the Sections of Medicine and Surgery, the Shattuck Lecture and the Annual Discourse, was most emphatic. There were no excursions, no exhibits, no junketting, and yet the whole time of all in attendance has been at once most profitably and agreeably occupied. Much of this is due to the good work of the officers, the committee of arrangements, and those entrusted with the various programmes.

The new Medical Library Building has added much to the comfort, convenience and pleasure of the occasion, and the same should be said of the use for larger meetings, and for the annual dinner of Chickering and Symphony Halls. At least an appreciative word must be added in praise of the singing of the Graduates' Glee Club at the annual dinner. This organization, under the direction of Dr. Sumner Coolidge, has reached a high degree of proficiency, and furnished music in grateful contrast to the band of former days.

A PROPOSED MEMORIAL TO JESSE WILLIAM LAZEAR, M.D.

IT will be remembered that in September of last year Dr. Jesse William Lazear, at that time acting assistant surgeon in the United States Army, and a member of the government commission for the investigation of yellow fever, contracted the disease of which he was making a study, and died at Quemados, Cuba. The circumstances under which he met his death were peculiarly heroic, since he voluntarily submitted himself to the experiment of being bitten by an infected mosquito, in the attempt to gain evidence that the affection is transmitted in this way. Dr. Lazear was still young and a man of very great promise. He was a graduate of Johns Hopkins University and received his degree in medicine at Columbia. He later studied in Europe and at the Johns Hopkins Hospital, and until his appointment to the army was engaged in teaching and research at that institution.

The friends of Dr. Lazear have felt that a lasting memorial should be established to him and to his work. To this end a circular has been sent out by a committee, of which Dr. William Osler is chairman, in the hope and with the expectation that a sufficient amount may be raised to procure an adequate memorial. We quote a part of the circular: "The many friends and admirers of the talented and accomplished student, of the brave, true, self-sacrificing man, desire to estab-

lish a lasting memorial to him and to his work. To this end a meeting was held on the evening of Wednesday, May 22d, which was presided over by Prof. William Osler. At this meeting it was concluded that the nature of the memorial could better be decided upon when some idea could be obtained as to the amount of money available. It was therefore decided that a committee, consisting of Dr. Stewart Paton and Dr. William S. Thayer, be appointed to arrange for the distribution of a circular among the friends and admirers of Lazear, setting forth the object of the meeting. It is earnestly hoped that not only those who have known and admired Lazear and his work, but also others who appreciate courage and manliness and self-sacrifice, may contribute to the fund for the Jesse William Lazear Memorial. Subscriptions may be sent to Dr. Stewart Paton, treasurer, Johns Hopkins Hospital, Baltimore, Md."

We are in entire accord with the spirit of this movement, and hope that the prompt reply to the circular from a sufficient number of subscribers may quickly make possible its consummation. Memorials are founded for various purposes, but we are disposed to think that the quiet devotion to duty which marked Dr. Lazear's death is far more worthy of such a recognition than many more ostentatious achievements.

A REORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION.

At the meeting of the American Medical Association in 1900 a Committee on Organization was appointed. This committee presented its report at the recent meeting of the association at St. Paul, and the report, including the revised Constitution and By-Laws, on motion of Dr. Harris, of New York, was adopted by a large majority. The report itself is a lengthy document, for the full text of which and for the report on the revision of the Constitution and By-Laws our readers are referred to the Journal of the Association, the issues for May 11th and June 8th. The necessity for these changes has long been apparent. Under the old conditions the transaction of business was either difficult or impossible, or so easy that it was undesirable. The association itself had not the weight in professional and public affairs to which its members and wide representation should entitle it.

The association has now provided itself with a more suitable machinery with which to work, but the results attained must depend in large measure upon the cordial co-operation of the State and county societies, a co-operation which we hope may be in due time forthcoming.

MEDICAL NOTES.

Appointment of William R. Stokes, M.D. — Dr. William Royal Stokes, city bacteriologist of Baltimore, has been appointed to the chair of pathology in the College of Physicians and Surgeons in that city.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 12, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 74, scarlatina 26, measles 181, typhoid fever 4, smallpox 0.

Smallpox in Various Places. — Two physicians of Worcester, Mass., who had been in attendance on a patient in the hospital suffering from smallpox, have contracted the disease. In Berlin, N. H., there are said to be 42 cases in the pesthouse. The malady is, however, of a mild type, but one death having occurred, and then because of other complications. A Portuguese schooner recently arrived at New Bedford from the Azores, with a large number of cases of smallpox on board. The vessel's passengers and crew will be cared for at the quarantine station on Gallop's Island, Boston Harbor, until danger of a spread of the disease from this source is past. It is said that the Boston health authorities have undertaken to care for the vessel's people, in accordance with an arrangement between that body and the surgeon-general of the navy, and all expenses will be paid by the vessel's owners. Objection is, however, made to taking patients who have been landed from the vessel. Fifteen cases of the disease are reported as under observation in the neighborhood of Providence, R. I., chiefly of a mild type.

A Queer Job for a Board of Health. — The Legislature of the Commonwealth of Massachusetts has ordered that the State Board of Health make a scientific and thorough physiological investigation of the healthfulness of baking-powders, making such tests as will demonstrate whether or not any brands of baking-powder on sale in this commonwealth are prejudicial to health, and whether the introduction into food of an article in small quantities, which ordinarily would be harmless, would, when taken by a person in feeble health or dietetically disordered, eventually undermine the system; and that said board make such recommendations to the next General Court as the result of said investigation shall in its opinion warrant.

A Proposed Hospital for Infectious Diseases in Cambridge, Mass. — Acting on a recent suggestion of Mayor Dickinson, of Cambridge,

the committee on health of the city council has negotiated for land on Concord Avenue, near the Belmont line. The lot is large enough to provide for a building for infectious diseases, a building for smallpox cases,— should the occasion arise,— for a diphtheria hospital, and for a general hospital. It is understood that the town of Belmont will coöperate with Cambridge in the maintenance of such an institution.

BOSTON FLOATING HOSPITAL. — The first trip of the Floating Hospital will take place July 5th. It will cost about $20,000 to operate the hospital for the summer. Several changes have been made in the medical staff. Dr. J. H. Pratt, of Harvard Medical School, has been appointed pathologist, and Dr. A. W. Fairbanks assistant to the visiting staff. There will be two resident physicians and two assistant resident physicians. There are, in addition, seven medical assistants.

A SERIOUS FIRE AVERTED IN THE CAMBRIDGE, MASS., HOSPITAL. — A fire started in the basement of the Cambridge Hospital the latter part of last week from the explosion of a tank of kerosene, but was checked by the prompt action of the fire department. No patients were injured, and the total damage is estimated at not more than $500.

NEW YORK.

A CASE INVOLVING THE CHILD-LABOR LAW.— Louis Lehmaier employed Vito Marino, a boy of twelve years, to run a machine in a factory, in violation of the labor law prohibiting the employment of children under fourteen years of age in factories. The boy had his fingers caught in the machinery, was injured, and sued for damages. The case was lost and appealed, and the Appellate Division of the Supreme Court has now given the following opinion on it: "If the defendant had complied with the statute and had not employed this child in his factory, the injury would not have happened; and thus placing the child at work upon a machine in violation of the statute, was the proximate cause of the injury. There was a case for the jury as to the defendant's negligence, and the judgment appealed from should be reversed and a new trial ordered."

ADDITIONAL PRIZES AT COLUMBIA.— At the monthly meeting of the Board of Trustees of Columbia University, held June 3d, it was announced that as a result of a considerable increase in the value of the prize fund founded in the College of Physicians and Surgeons by Dr. Jacob Harsen, of the class of 1825, three additional Harsen prizes, of $500, $300 and $200 respectively, have been established for proficiency in examinations. Among the gifts reported was one of $1,500 for fitting up the zoölogical laboratory in Barnard College. Drs. Charles H. Peck, Warren S. Bickham and Alfred S. Taylor have been appointed assistants in surgery in the medical department.

UNIVERSITY OF NEW YORK.— The sixty-ninth annual commencement of the professional and graduate schools of the University of the City of New York was held on June 6th at the Metropolitan Opera House. There were 74 graduates in medicine and 6 in veterinary surgery, and it was announced that 32 of the former had secured hospital appointments. Among the announcements made by the chancellor was that Dr. Robert MacDougall, of Harvard, had been appointed to the chair of experimental psychology in the School of Pedagogy.

DEPORTATION OF TUBERCULOUS IMMIGRANTS.— Commissioner-of-Immigration Fitchie, who has just returned from a visit to Washington, reports that the recent order requiring the deportation of all immigrants affected with tuberculosis is simply the result of a ruling on the matter which had been asked for by the Marine Medical Service. The order classes tuberculosis as a "dangerous contagious disease."

Miscellany.

AMERICAN SOLDIERS IN THE TROPICS.

ON May 31st at the Association of Military Surgeons at St. Paul, Minn., Dr. Louis L. Seaman of New York, late Surgeon First United States Volunteer Engineers, who has recently returned from China, read a valuable paper, in the course of which he said: It is interesting to note that on their arrival in China it was the boast of the medical officers of the German Army that typhoid fever and dysentery were comparatively unknown visitors to their camps. Yet within two months their hospitals contained over 500 cases of typhoid, followed by an appalling list of fatalities, while the wards of the American hospitals were and are still singularly free. The Americans had the only water-distilling plant in operation in Pekin, and its capacity was so much greater than the requirements of our army that two tons of the surplus water were donated to the Japanese every day of the winter. The American quartermaster also cut and stored 800 tons of ice in Pekin — the only ice ever housed in that ancient city. The low percentage of all illnesses except those of a private nature, and especially the almost total absence of the class termed "digestive diseases," offers a startling contrast to conditions existing during the Spanish-American war in Porto Rico or Cuba. There I have seen as high as 75% of a command suffering from these diseases at one time, and in the Philippines the percentage of these cases remains persistently high. One nat-

urally looks sharply for the cause of this startling difference, a difference of from one two-hundredth of 1% to 75%. Here in this invigorating zero temperature, where animal heat is rapidly radiated, the men show evidences of splendid health. In China heat-producing foods are needed. Even our full army ration, the richest and most varied in the world, and the envy of every soldier in the allied armies, was not found sufficient to satisfy the cravings of the men. The energy of their systems was not consumed in an effort to eliminate heat-producing foods, as was the case when they were in the tropics, where such foods were superfluous or inappropriate, and therefore not digested or metabolized. Under these conditions such foods rapidly undergo decomposition in the intestinal tract and create toxins, which nature endeavors to eliminate as quickly as possible by establishing catarrhs and diarrhea as the only method left to rid herself of such irritants. And yet Congress has just decreed that no change shall be made in the United States Army ration—that it shall remain practically the same at the pole as at the equator. Let it not be forgotten that in the Spanish-American War, the actual hostilities of which lasted but six weeks, there were fifteen fatalities from disease (practically all preventable) for every one from bullets and wounds. If any vindication were necessary for the theory of regulating the ration of an army to suit climatic conditions, unanswerable proof can be found in Pekin in the study of the statistics of every company serving in the Chinese expedition.

INVESTIGATION OF TUBERCULOSIS IN NEW YORK STATE.

IT having been announced that the State Department of Health is about to take an enumeration of the persons in New York State affected with tuberculosis, Commissioner Daniel Lewis has given out the following statement: "The present immediate purpose is not to require or obtain a personal registry of these cases, nor to institute a system of sanitary inspection or isolation of consumptives, but to obtain, with such accuracy as it is possible to do, a record of the number of persons in each municipality who at this time are subjects of this disease; to learn the locality of the disease, its distribution and surroundings. This accumulation of data will be fundamental to more exact plans for its control. It will likewise be of great value in the discussion of the question of State care of consumptives, and also in determining the death rate from this cause. A further report of the sources of infection would also be valuable in the study of the etiology and prophylaxis of tuberculosis. We are not inaugurating a new work, for since 1893 something in this direction has been in operation." In a special report by Dr. H. M. Biggs, of the City Health Department, which was introduced in the recent report of the Tenement-house Commission, it is pointed out that more than one-quarter of all deaths occurring in New York City in the period of greatest usefulness — fifteen to sixty-five — are due to tubercular disease; and the opinion is expressed that with the enforcement of certain regulations, especially regarding tenement houses and lodging-houses, and the immediate municipal provision of hospital accommodations for from 2,500 to 3,000 consumptives, the death rate in the city from tuberculosis would within five years be reduced by one-third — a saving annually of 3,000 lives.

DERMATITIS PRODUCED BY A CATERPILLAR.

BOSTON, June 10, 1901.

MR. EDITOR: — Last summer I saw at the clinic for skin diseases at the Massachusetts General Hospital a considerable number of cases of inflammation of the skin, which were undoubtedly caused by contact with some caterpillar. The dermatitis was of the same type in all the cases, and there was also a uniform history of the removal of caterpillars from the affected parts just preceding the appearance of the eruption. As such cases had not previously occurred under my observation, I concluded that the larva must be some recently-introduced species. The parts affected were generally the neck, sometimes the face and hands. The efflorescence was urticarial in character, but very persistent; that is, remaining unchanged for two or three days. The lesions were in some cases arranged in long, continuous tracts, as if following the course of the creature upon the skin. The statements generally given were that the patient had been walking, or had sat under a tree, and had found the caterpillar crawling over the parts which were affected a few hours later.

This season several patients have already presented themselves with the same peculiar, persistent itching, more or less confluent, urticarial eruption chiefly upon the neck (two of them today), and tell the same story. They all give the same description of the caterpillar, which is probably the larva of the brown-tailed moth, *Euproctis chrysorrhea*. The patients come from towns in this vicinity. The affection yields quickly to soothing washes.

Yours very truly,

JAMES C. WHITE, M.D.

METEOROLOGICAL RECORD.

For the week ending June 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...26	30.11	50	54	45	70	75	72	E	S E	9	9	C.	O.	.0
M..27	29.76	48	51	45	94	96	95	N E	N E	6	10	R.	R.	.63
T...28	29.62	53	57	49	97	94	96	N E	S	8	1	R.	O.	.25
W 29	29.88	51	54	48	90	93	92	N E	E	18	15	O.	R.	T.
T...30	29.88	48	51	46	97	93	95	N E	E	8	5	O.	O.	T.
F ..31	29.81	60	69	51	90	83	86	S W	S W	8	6	O.	O.	.01
S 1	29.83	52	54	49	100	95	98	N E	N	11	8	R.	R.	T.
☞	29.84		56	48			91							.89

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 1, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York . .	3,437,202	1,167	378	29.22	13.71	3.22	3.60	4.28
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	141	39	21.98	12.76	—	2.83	2.12
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	112	36	26.79	13.40	.89	1.78	2.68
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	49	11	24.48	8.16	—	2.04	2.04
Boston . . .	560,892	181	46	24.30	16.02	3.31	1.67	2.20
Worcester. .	118,421	20	5	15.00	10.00	—	—	—
Fall River. .	104,863	29	14	27.60	—	—	10.35	—
Lowell . . .	94,969	31	12	6.40	19.35	—	—	—
Cambridge .	91,886	29	8	31.05	13.80	—	—	6.90
Lynn. . . .	68,513	10	1	20.00	—	—	—	—
Lawrence . .	62,559	20	7	20.00	15.00	—	5.00	—
New Bedford.	62,442	19	8	26.31	15.79	—	5.26	—
Springfield .	62,059	17	4	17.64	—	—	—	—
Somerville .	61,643	11	3	18.18	18.18	—	—	9.09
Holyoke . .	45,712	13	1	30.80	—	—	7.70	—
Brockton . .	40,063	10	3	10.00	40.00	—	10.00	—
Haverhill . .	37,175	9	1	22.22	—	—	—	11.11
Salem . . .	35,956	8	—	—	25.00	—	—	—
Chelsea . .	34,072	7	—	14.30	—	—	—	—
Malden . . .	33,664	4	—	—	50.00	—	—	—
Newton. . .	33,587	8	1	37.50	—	—	—	12.50
Fitchburg. .	31,531	9	1	22.22	11.11	—	—	—
Taunton . .	31,036	12	1	33.33	16.67	—	—	—
Gloucester .	26,121	7	3	14.30	—	—	—	—
Everett . .	24,336	6	1	50.00	16.67	16.67	—	—
North Adams	24,200	6	3	—	—	—	—	—
Quincy . . .	23,899	9	3	11.11	11.11	—	—	—
Waltham . .	23,481	5	1	20.00	40.00	—	—	—
Pittsfield . .	21,736	3	—	—	—	—	—	—
Brookline . .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	6	3	—	—	—	—	—
Medford . .	18,244	8	1	12.50	25.00	—	—	—
Newburyport	14,478	3	—	33.33	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 1,989, under five years of age 602; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 528, acute lung diseases 265, consumption 262, scarlet fever 46, influenza 2, erysipelas 14, typhoid fever 19, whooping cough 7, measles 20, cerebro-spinal meningitis 8, smallpox 17.

From whooping cough, New York 4, Baltimore, Pittsburg and Boston 1 each. From cerebro-spinal meningitis, New York 4, Baltimore, Boston, Somerville and Gloucester 1 each. From scarlet fever, New York 38, Pittsburg 1, Boston 6, Everett 1. From typhoid fever, New York 2, Pittsburg 11, Boston, Fall River, Cambridge, Taunton, Everett and Beverly 1 each. From erysipelas, New York 10, Baltimore, Pittsburg, Boston and Lowell 1 each. From influenza, Baltimore and Pittsburg 1 each. From smallpox, New York 17.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending May 18th the death rate was 16.8. Deaths reported 3,689: acute diseases of the respiratory organs (London) 249, whooping cough 150, diphtheria 45, measles 81, fever 16, scarlet fever 31.

The death rate ranged from 8.9 in Croydon to 22.1 in Preston; Birkenhead 15.5, Birmingham 19.1, Blackburn 18.8, Bolton 18.8, Bradford 17.3, Brighton 12.6, Bristol 16.9, Burnley 18.2, Cardiff 14.2, Derby 17.2, Gateshead 15.1, Halifax 19.8, Huddersfield 14.3, Hull 16.7, Leeds 17.6, Leicester 12.8, Liverpool 20.0, London 15.8, Manchester 20.7, Newcastle-on-Tyne 15.7, Norwich 14.4, Nottingham 17.6, Oldham 14.0, Plymouth 16.9, Portsmouth 15.1, Salford 19.1, Sheffield 15.8, Sunderland 22.0, Swansea 19.8, West Ham 16.7, Wolverhampton 16.6.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDING JUNE 1, 1901.

DR. J. H. IDEN, appointed assistant surgeon in the Navy, from May 4, 1901.

W. S. DIXON, medical director. Commissioned medical director from April 28, 1901.

C. G. HERNDON, medical inspector. Commissioned medical inspector from April 28, 1901.

E. V. ARMSTRONG, passed assistant surgeon. Detached from "Vermont" and ordered to Key West Naval Station for duty at Dry Tortugas.

T. M. LIPPITT, assistant surgeon. Ordered to the Washington Navy Yard, June 1st.

R. B. WILLIAMS, assistant surgeon. Detached from duty at Dry Tortugas, and ordered home to be in readiness for sea duty.

J. H. IDEN, assistant surgeon. Ordered to Naval Hospital, Chelsea, Mass., for duty.

J. F. COSTIGAN, passed assistant surgeon. Detached from the "Yorktown" and ordered home. Resignation to be accepted after arrival.

W. M. GARTON, assistant surgeon. Detached from the Washington Navy Yard, June 1st, and ordered to the "Indiana."

H. O. SHIFFERT, assistant surgeon. Ordered to the "Nashville."

E. THOMPSON, assistant surgeon. Ordered to the "Solace."

R. K. MCCLANAHAN, assistant surgeon. Ordered to the "Culgoa."

J. COWAN, pharmacist. Detached from the Manila and Cavite Naval Station and ordered to Naval Hospital, Yokohama, Japan.

SOCIETY NOTICES.

BRITISH CONGRESS ON TUBERCULOSIS. — The British Congress on Tuberculosis will be held in the Queen's Hall, London, from Monday, July 22, to Friday, July 26, 1901, under the patronage of the king.

BOSTON MEDICAL LIBRARY. — The Medical Library will hold its first Smoke-talk June 15th, at 8.15 P.M., at the Library Building, 8 The Fenway. Dr. C. J. Blake will give a short talk. Dr. Malcolm Storer will show and talk about some of the Library's collection of medical medals. Dr. J. W. Courtney will read a sketch entitled "The Journalistic Physician." There will be singing by members of the Harvard Graduates' Glee Club.

F. J. COTTON, M.D., Chairman of Committee.

RECENT DEATH.

SETH B. SPRAGUE, M.D., of Jersey City, N. J., died on June 5th, after an extended illness. He was born at Dexter, Me., January 12, 1840, and was a graduate of Bowdoin. His eldest son, Dr. Ezra K. Sprague, is a passed assistant surgeon in the United States Marine Hospital service.

BOOKS AND PAMPHLETS RECEIVED.

Indian Basketry. By George Wharton James. Illustrated. New York: Henry Malkan. 1901.

Study of Man. By Arthur MacDonald, Specialist in the United States Bureau of Education, Washington, D. C. Reprint. 1901.

Verhandlungen des Vereins für innere Medicin in Berlin. Herausgegeben von dem Norstande des Vereins. Jahrgang XX, 1900–1901. Berlin, 1901.

Selected Researches in Pathology. By Alex. Gunn Auld, M.D., M.R.C.P. Illustrated. London: J. A. Churchill; Philadelphia: P. Blakiston's Sons & Co. 1901.

Diseases of the Thyroid Gland and Their Surgical Treatment. By James Berry, B.S. (Lond.), F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Sons & Co. 1901.

Department of Public Health, New South Wales. Report on the Outbreak of Plague at Sydney, 1900, by the Chief Medical Officer of the Government and President of the Board of Health. William Applegate Gullick, Government Printer, Sydney. 1900.

Some Retrospects and Prospects in Surgery. By Reginald Harrison, F.R.C.S., Member of Council, Ex-Vice-President, and Hunterian Professor of Pathology and Surgery, Royal College of Surgeons; Honorary Fellow of the American Surgical Association; President of the Medical Society of Liverpool (1881–2); of London (1896); and of the Surgical Section of the British Medical Association (1901–2); Surgeon to St. Peter's Hospital, London. An address delivered at the Medical School of Cornell University, New York, March 13, 1901. Reprint. 1901.

Original Articles.

A STUDY OF THE FOOD CONSUMED AND DIGESTED BY FOUR MEMBERS OF THE HARVARD UNIVERSITY BOAT CREW IN JUNE, 1900.

BY W. O. ATWATER AND F. G. BENEDICT,
MIDDLETOWN, CONN.

INTRODUCTION.

CONSIDERABLE information has accumulated within the past few years concerning the normal and usual food consumption of mechanics, laboring men, professional men and other people in ordinary conditions of life, but the food requirement of athletes is less definitely understood.

In Bulletin No. 75 of the Office of Experiment Stations of the U. S. Department of Agriculture,[1] account is given of dietary studies carried on with the Harvard and Yale University boat crews during the spring of 1898. These show the kinds, amounts and composition of the food actually eaten by the crews, and in one instance by an individual member, when in training at Cambridge and New Haven, and later at Gales Ferry, near New London. Another bulletin of the same department, now in press, reports the kinds, amounts and composition of the food eaten, and the amounts and composition of the feces and urine excreted by three bicycle racers during a six-day race in Madison Square Garden, New York City.[2] The studies just mentioned, with one of the food eaten by Sandow,[3] one of food eaten and urinary excretions by Weston, the pedestrian,[4] and two of food eaten by college foot-ball teams, one at Wesleyan,[5] and one at the University of California,[6] represent practically the extent of the investigations of the food of athletes thus far made in this country. A few investigations of a somewhat similar nature have been made in other countries.

It is evident that more data are needed regarding the food consumption and food requirements of persons with intense muscular exercise. The desired information is ordinarily sought by dietary studies, digestion experiments, studies of the excretory products,—especially the urine, nitrogen metabolism experiments, and, finally, respiration and respiration calorimeter experiments, which include more detailed investigation of the metabolism of matter and energy in the body.

Dietary studies.— The object of studies of this sort is generally to find the kinds, amounts and composition of the food consumed by people of different classes. A large number of dietary studies of people in ordinary walks of life have been made in this and other countries, but the number made with athletes is still small, as just explained. The investigation here reported includes such a study.

Digestion experiments.— Not all of the food consumed is actually available to the body for the building and repair of tissue and the yielding of energy. A portion resists the action of the digestive juices, and is eliminated, together with residues from the digestive juices and other metabolic products, in the intestinal excreta. The proportions of the nutrients of the food which are actually available to the body have been determined by means of so-called digestion experiments, in which the ingredients of the food eaten and those excreted in the feces are compared, in order to find the proportion thus actually used by the body. A large number of experiments of this sort have been made with people engaged in ordinary occupations. Very few data, however, have accumulated concerning the relative digestibility of the same food materials under different conditions of rest and of more or less active or severe labor. The present investigation includes a digestion experiment under conditions of very severe muscular work.

Investigations of excretory products.— The composition of urine is one of the most, and that of feces one of the least, thoroughly studied topics of physiological chemistry. In the present experiments the feces were analyzed by the methods commonly followed, while the examinations of urine were somewhat more detailed than are usual in digestion experiments.

Nitrogen metabolism experiments.— The object here is the study of the metabolism of proteids, as shown by the income and outgo of nitrogen. In the present experiments the total nitrogen was determined in the food, feces and urine, thus showing the nitrogen balance.

THE INVESTIGATION.

The present investigation, which thus includes dietary, digestion and nitrogen metabolism experiments,[7] was made at the instigation of the Harvard Athletic Committee, through Dr. E. A. Darling in order to obtain information regarding the food consumed and digested by the Harvard University boat crew. The observations were made in June, 1900, at the headquarters of the crew, at Gales Ferry, near New London, during the last days of training previous to the race with Yale, on June 28th. The feces and urine were sent, with samples of the food materials, to Middletown, where the analyses were made in the chemical laboratory of Wesleyan University.

[1] Dietary Studies of University Boat Crews, by W. O. Atwater and A. P. Bryant.

[2] Dietary Studies of Bicycle Racers, by W. O. Atwater and H. C. Sherman. Not yet published.

[3] Reported by C. F. Langworthy and W. H. Beal in Storrs' (Conn.) Agricultural Experiment Station Report, 1896, p. 158.

[4] Reported by Austin Flint in New York Medical Journal, June, 1871.

[5] Reported by W. O. Atwater and C. D. Woods in Storrs' (Conn.) Agricultural Experiment Station Report, 1891, p. 128.

[6] Reported by M. E. Jaffa in Bulletin No. 84 of the Office of Experiment Stations of the U. S. Department of Agriculture.

[7] The experiments were so planned as to bring them in line with a larger inquiry regarding the food and nutrition of man, which is being carried on by authority of Congress, under the auspices of the Department of Agriculture, and by co-operation with a considerable number of universities, colleges, and experiment stations in different parts of the country. The extent of the present investigation, its usefulness for its especial purpose and its general value are thus greater than would otherwise have been possible. Its relation to the larger inquiry will account for the numbering of the dietary and digestion experiments in the tables beyond, as well as the fact that the results of that inquiry have been drawn upon so freely. The details of the experiments will probably be published in a bulletin of the Office of Experiment Stations of the U. S. Department of Agriculture.

Subjects.— It was not practicable to include all of the crew in the study, but it was possible to make such arrangements with four members of the crew, that their exact food consumption could be determined, as well as the quantities of liquid and solid excreta. The ages, heights and weights of the four men were as follows:

Subject.	Age. Years.	Height. Feet.	Inches.	Weight. Pounds.
A	30	6	2 1-2	174
B	22	5	11	163
C	19	6	0	175
D	25	6	1 1-2	167

Physical condition of the men; daily routine. — As regards the physical characteristics and condition of the men, it will suffice here simply to call attention to the fact that they were in normal condition throughout the period of the study. The men rose at 7 A.M. and took a five-minute walk before breakfast. After breakfast they indulged in reading, going out in the launch, playing games, etc., until about ten o'clock, when they prepared for morning practice on the river, which was in general from three-quarters to one and one-quarter hours in duration. On the return, after the bath a light lunch was served, and at two o'clock a heartier meal was taken. The evening row began between five and six o'clock, and lasted from one-half to two hours. The last and the heartiest meal of the day was served about eight o'clock, and at its close the men sang or read until ten o'clock, at which time they were obliged to retire.

General plan of the study.— The four men ate at a small table in the large general living room, which served as a dining room. The remainder of the crew, the substitutes and the coaches, sat at one long table in the same room. The observers in charge of the investigation were stationed at the door of the pantry adjoining. The small table, at which the men under observation sat, was served by a special waiter, who was also required to serve, in a general way, at the large table. Each article of food served at the small table and all food materials taken from that table were weighed, and samples were taken for analysis. No attempt was made to determine the proportions of food consumed by the four men individually. The study began with breakfast Tuesday morning, June 19th, and ended with the evening meal of Monday, the 25th.

Food.— The kinds of food materials served were much the same as those in the study of Harvard crews two years previous, the results of which have already been referred to.[8] All the visible fat was trimmed from the meat, and rejected. With lamb or mutton chops only a small amount of the total weight of the chop was actually eaten. Well-cooked, crisp bacon was served occasionally, and seemed to be especially relished. Most of the bread was toasted, although at the last meal of each day stale bread was allowed. A dish of calves' foot jelly with sherry was given after the morning row, and at the evening meal ale or claret was allowed. It was noticed that after the time row, and other unusually severe work, more ale or claret was taken. Table 3 beyond shows the kinds and amounts of food materials consumed.

Feces.— In collecting the solid excreta from a given diet it is customary to make the separation between the feces from the diet under consideration and those from the previous and subsequent diet, by means of small portions of charcoal administered at the beginning and end of the experiment. The charcoal serves to color the feces. Such separation was attempted in this investigation; but owing to a misunderstanding the feces were not collected after the close of the study, and consequently the final separation was not obtained, and the first was of no use. In order to provide in advance for such a contingency the feces excreted by each subject were collected for each day, beginning with the commencement of the experiment, and thus the feces eliminated during the exact period covered by the study were taken as the measure of the feces belonging to the food eaten during the same period. Inasmuch as the diet was very nearly the same in the days immediately preceding as during the experiment, it is assumed that the feces collected during the first two or three days of the investigation were not materially different in amount and composition from those collected in the latter part of the period. Any error introduced in this way could hardly be important.

Urine.— This was collected for each subject separately in twenty-four hour periods, beginning at 11 o'clock in the morning of June 19th. At this time, immediately preceding the morning row the bladder was always emptied.

It will thus be seen that the quantities of solid and liquid excreta were determined for each subject, but the food consumed was determined only for the four men taken together. It is hoped that at some future time it may be possible to determine both the food and the excretory products of individual persons. It was obviously necessary, in this case, to make the investigation of as little trouble as possible to the men, and on this account no attempt was made to determine the food consumption of the individuals separately.

Methods of Analysis. — The methods followed were, in the main, those adopted by the Association of Official Agricultural Chemists,[9] with such modifications as have been devised from time to time in this laboratory. The total nitrogen was in all cases determined by the Kjeldahl method, with the special manipulation suggested by one of us.[10] The fat was determined by extraction with ether and the mineral matter by incineration, with the usual precautions. The water was determined by drying in a water oven for a period of five hours. In vegetable food materials and in milk the difference between 100% and the sum of the percentages of water, protein,[11] fat (ether

[8] U. S. Department of Agriculture, Office of Experiment Stations, Bulletin No. 75.

[9] See U. S. Department of Agriculture, Division of Chemistry, Bulletin 46.

[10] Journal of American Chemical Society, 22 (1900), p. 259.

[11] It is a common custom to estimate protein, both of animal and vegetable foods, as N x 6.25, thus assuming an average of 16%

extract) and mineral matter (ash) was taken as indicating the proportion of carbohydrates; in other words, carbohydrates were estimated by difference.

The heats of combustion of food and excretory products were determined by means of the bomb calorimeter.[12] The combustion of solid materials, like bread, meat, etc., are made by compressing air-dry or partially-dried material in pellets, and burning them with a large excess of oxygen in the bomb. The accurate determinations of the heat of combustion of urine is, however, more difficult, owing to the tendency of urea to decompose into ammonium carbonate during the process of drying. We have followed the method suggested by Kellner,[13] which is in effect the saturation of a cellulose "absorption block" of known weight and known heat of combustion with a known amount of urine, drying in an oven at about 60° C. and burning in the bomb calorimeter. The heat of combustion of the urine taken is the difference between the total heat given off and that produced by the combustion of the cellulose block.[14]

In the analytical work involved in the investigation here reported, we are indebted to the valuable aid given by Dr. J. F. Snell and Messrs. P. B. Hawk, E. Osterberg and E. M. Swett. The determinations of urea and uric acid, however, were made by Dr. E. W. Brown, who has made a special study of the subject in the laboratory of physiological chemistry of Yale University. The urea was determined by the Mörner-Sjoguist[15] method and the uric acid by the Hopkins[16] method.

Sampling and analysis of food materials.— In order to make the statistics as exact as possible, practically all the food consumed was sampled and analyzed. In the case of uncooked foods this is not so imperative. The composition of ordinary raw food materials can be estimated approximately from the averages of a large number of analyses of different materials which have lately accumulated. The composition of cooked materials is, however, uncertain, both because only a few analyses have been made of cooked food and because the methods of preparation of the same materials or "made dishes" differ widely. The quantity of nutrients in a roast of beef depends not only upon the composition of the raw material, but also upon the amount of water and fat which are removed in roasting. The composition of mashed potatoes depends not only upon the composition of the potatoes themselves, but upon the amount of butter and milk, or cream, which may have been added. It was, however, impracticable in this investigation to analyze samples of every kind of cooked food. The following general plan for sampling and analysis was therefore adopted:

All food materials were sampled, with the exception of raw eggs, lady fingers, shredded wheat, bread pudding (which was served but once), sugar and fresh fruit. A composite sample of the meats was obtained by taking, as an aliquot subsample, one-tenth of the weight of each kind of meat served at each meal. These various aliquot subsamples were united in one large composite sample of all meats eaten. This composite

TABLE 1.— PERCENTAGE COMPOSITION OF FOOD MATERIALS EATEN BY FOUR ATHLETES.

Laboratory No.		Water.	Nitrogen.	Protein.	Fat.	Carbohydrates.	Ash.	Heat of Combustion per gram. Calories.
3237	Meats. Composite sample.	60.7	3.7	23.2	13.1	.....	1.6	2.580
3217	Poultry. Composite sample.	59.6	4.4	27.7	9.8	.....	1.4	2.519
3215	Fish	67.1	3.5	21.9	7.6	.....	1.5	1.995
a	Eggs, raw	73.7	2.4	14.8	10.5	.....	1.0	1.833
3216	Eggs, cooked	73.7	1.8	11.0	11.4	.....	1.1	1.852
3230	Soups. Composite sample	88.9	0.8	4.8	1.3	3.4	1.6	.512
3232	Butter	12.8	0.2	1.0	83.2	.....	2.9	7.781
3218	Milk	87.8	0.5	3.2	3.3	5.0	0.7	.683
3231	Cream	76.3	0.5	2.8	16.0	4.3	0.7	1.769
3236	Calves' foot jelly	72.5	0.8	5.3	.....	21.4	0.9	1.177
3214	Oatmeal	82.2	0.5	2.7	0.8	13.7	0.6	.817
a	Shredded wheat biscuit	8.6	2.2	13.6	2.4	74.5	0.9	4.011
3225	Toast	21.0	1.7	9.8	4.1	63.4	1.7	3.658
3213	Bread, white and graham. Composite sample	33.0	1.4	8.0	4.6	53.1	1.3	3.123
3239	Crackers, graham	5.3	1.2	6.9	11.1	74.0	1.8	4.571
a	Lady fingers	15.0	1.4	8.8	5.0	70.6	0.6	3.799
b	Bread pudding	67.3	0.8	4.8	5.2	22.5	0.2	1.685
3224	Tapioca pudding	74.7	0.1	0.6	2.3	22.2	0.2	1.116
a	Sugar	.....	.....	.....	.....	100.0	...	3.960
3223	Vegetables. Composite sample	79.0	0.4	2.4	2.5	14.6	1.6	.944
a	Grape fruit	86.9	0.1	0.8	0.2	11.6	0.5	.524
3234	Marmalade	17.0	0.1	0.6	0.1	82.1	0.2	3.325
3229	Rhubarb sauce	78.0	0.1	0.5	0.1	21.0	0.4	.875
3228	Prune sauce	49.2	0.2	1.0	0.2	48.5	1.1	2.012
3227	Fruit salad	77.9	....	0.2	.....	21.8	0.1	.886
a[2]	Strawberries	90.4	0.2	1.0	0.6	7.4	0.6	.404
a[3]	Cherries	80.9	0.2	1.0	0.8	16.7	0.6	.794
3235	Jelly	22.1	0.1	0.6	....	77.0	0.3	3.111
3233	Orange sherbet	67.4	...	...	....	32.4	0.2	1.280
3240	Ale	.... [1]	....	.....	.....	13.9[2]	...	.572
3238	Claret	.... [1]	....	.....	.....	11.5[3]	....	.479
....	Sherry	.... [1]	....	.....	.....	24.6[4]	...	.984

a Composition assumed from averages of analyses of similar materials, as reported in Bulletin 28, revised, of the Office of Experiment Stations, U. S. Department of Agriculture; The Composition of American Food Materials, by W. O. Atwater and A. P. Bryant.

b See pages 15 and 16 of Bulletin 75 of the Office of Experiment Stations, U. S. Department of Agriculture, on Dietary Studies of University Boat Crews, by W. O. Atwater and A. P. Bryant.

[1] Undetermined.

[2] Found to contain 5.97% alcohol by weight, and 3.8% other organic matter. Since the heat of combustion of alcohol is 7.1 and the heat of combustion of carbohydrates about 4.1 calories per gram, it follows that 1 gram of alcohol is isodynamic with 1.7 grams of carbohydrates (7.1 ÷ 4.1 = 1.7). The 5.97% of alcohol in the ale may therefore be assumed as equivalent to 10.1% of carbohydrates. Assuming the remaining 3.8% of organic matter to be sugars or starches, the total organic matter in the ale is equivalent to 13.9% of carbohydrates.

[3] Found to contain 6.7% alcohol by weight, isodynamic with 11.5% carbohydrates.

[4] Assumed to contain 14.5% alcohol by weight, isodynamic with 24.6% carbohydrates.

of nitrogen in protein of both animal and vegetable foods. The proportion of nitrogen in protein of vegetable food, especially of the cereal products, appears to be greater than 16%, and requires a smaller factor than 6.25. The factors for protein here used are stated in Table 8 beyond. For a full discussion of the proper nitrogen factor for computing protein, see discussion by Atwater and Bryant, Reports of Storrs' (Conn.) Agricultural Experiment Station, 1899, pp. 74–79.

[12] For a description of this apparatus, see Chemistry and Economy of Food, by W. O. Atwater, U. S. Department of Agriculture, Office of Experiment Stations, Bulletin 21, p. 123; and Reports of Storrs' (Conn.) Agricultural Experiment Station, 1894, p. 135, and 1897, p. 199.

[13] Landw. Vers. Stat. 47 (1896), p. 297.

[14] For a description of this method, see Experiments with Metabolism of Matter and Energy, by W. O. Atwater and F. G. Benedict, U. S. Department of Agriculture, Office of Experiment Stations, Bulletin 69, revised, p. 23.

[15] Skand. Arch. f. Physiol., 1891, ii, p. 438.

[16] Chemical News, 1892, p. 101, and Journal of Pathology and Bacteriology, 1893, p. 457.

TABLE 2.—PERCENTAGE COMPOSITION OF FECES: EXPERIMENT WITH FOUR ATHLETES.

Laboratory No.	Subject.	Water.	Nitrogen.	Protein.	Fat.	Carbohydrates.	Ash.	Heat of Combustion per gram. Calories.
3219	A	76.4	1.3	7.9	3.9	7.7	4.1	1.199
3220	B	82.7	1.1	7.0	3.7	4.5	2.1	.954
3221	C	81.1	1.3	7.8	3.7	4.9	2.5	1.039
3222	D	82.8	0.9	5.7	4.4	4.0	3.1	.918

TABLE 3.—FOOD EATEN BY FOUR ATHLETES DURING SEVEN DAYS.

DIETARY STUDY NO. 324.[1]

Laboratory No.	Kind of Experiment.	Day of Study. (Number of grams.) 1	2	3	4	5	6	7	Total, 7 Days.
3237	Meats: (Composite sample.)								
	Roast beef	820	210	310	385	410	410	510	3,055
	Bacon	125							125
	Lamb chops		170		125		125	140	560
	Steak		565	170	665	100			1,500
	Liver and bacon.			210					210
	Liver					170			170
	Roast mutton					185		310	495
	Lamb stew							170	170
3217	Poultry: (Composite sample.)								
	Chicken	425		210			200		835
	Turkey		170						170
3215	Fish:								
	Salmon	200	455						655
a	Eggs, raw			55				30	85
3216	Eggs, cooked	170	155	140	265	125	240	80	1,175
3230	Soups: (Composite sample.)								
	Bouillon			580	555	540		455	2,130
	Potato					1160			1,160
	Okra						525		525
	Consomme							1,345	1,345
	Soup				920				920
	Oyster stew	950							950
	Tomato		990	1090					2,080
3232	Butter	170	185	185	225	215	225	225	1,430
3218	Milk	1,885	3,120	2,950	1,715	3,375	1,730	2,950	17,725
3231	Cream	980	1,105	455	965	1,005	835	750	6,095
3236	Calves' foot jelly		325	455	385	340		355	1,860
3214	Oatmeal	550	625	210	400			170	1,955
a	Shreaded wheat biscuit	225	225	155	155	225	225	140	1,350
3225	Toast	440	355	540	425	550	550	565	3,425
3213	Bread, white and graham	395	400	200	440	425	355	325	2,540
3239	Crackers, graham	115	85	125	125	155	420	210	1,235
a	Lady fingers			200					200
b	Bread pudding		210				140		350
3224	Taploca pudding				495				495
a	Sugar	140	115	70	100	70	100	70	665
3223	Vegetables: (Composite sample.)								
	Potatoes.	340	710	480	505	270	335	560	3,200
	Green peas	210				100	270		580
	Beets, boiled	200			125		140		465
	Macaroni		300			340			640
	Rice, boiled		170		270			255	695
	Tomatoes, stewed		185						185
	Corn, stewed			170					170
	Asparagus			680					680
	Greens				300				300
	Onions, boiled						200		200
	String beans							155	155
a	Grape fruit and oranges		225	240		210	300	210	1,185
3234	Marmalade	125	170	155	115	100	155	125	945
3225	Rhubarb sauce		370		510	155	565	155	1,755
3228	Prune sauce		140	100		200		240	680
3227	Fruit salad	905							905
a	Strawberries	355			300	115			770
a	Cherries	225							225
3235	Jelly					325		140	465
3233	Orange sherbet			680					680
3240	Ale	1,220	835	795	2255	340	285	1545	7,275
3238	Claret	355	370	710		695	425		2,555
....	Sherry		115	55	85	115		85	455

[1] This is the 324th study of the series referred to in footnote 7.

sample was used for analysis. Similar composite samples were taken of all kinds of fish, of soups, of breakfast foods, etc.

Some of the sauces and desserts were not completely analyzed; since they did not form an important part of the diet, the amount of dry substance only was determined, and the composition of this dry substance was assumed from other analyses of the constituent food materials. The error thus involved can hardly be large enough to affect materially the results.

The percentage composition of the food materials used in the study is shown in Table 1. Those designated by laboratory numbers were analyzed; the composition of those designated by the letters *a* and *b* was estimated, as stated in a footnote to the table.

Collection and analysis of feces.—The feces were collected for each subject during the whole period of the experiment, and were analyzed separately; the figures thus show in each case the composition of the whole quantity for seven days. The percentages apply to fresh (not partly dried) substance. The results are shown in Table 2.

The amount and composition of the urine will be discussed later.

THE DIETARY STUDY.

The figures of Table 3 show the kinds and amounts of food eaten by the four men on each day and during the whole seven days of the experiment. For the reason explained above it was not found practicable to weigh the amounts eaten by each man separately. The food materials were weighed as they were put on the table ready for eating. The portions left uneaten were also weighed. The quantities here given are those actually eaten; they were found by deducting the amounts not eaten from those served.

TABLE 4.—NUTRIENTS AND ENERGY IN DAILY FOOD OF FOUR ATHLETES.

DIETARY STUDY NO. 324.

Food Eaten.	Total food. Grams.	Organic matter. Grams.	Nitrogen. Grams.	Protein. Grams.	Fat. Grams.	Carbohydrates. Grams.	Fuel value. Calories.	Heat of combustion. Calories.
June 19, per man	2,822	768	27.5	169	156	443	3,840	4,215
" 20, " "	3,205	831	29.9	183	177	471	4,195	4,601
" 21, " "	3,035	785	24.5	149	135	501	3,800	4,139
" 22, " "	3,143	805	25.3	155	168	482	4,040	4,417
" 23, " "	2,945	808	24.2	148	164	496	4,035	4,370
" 24, " "	2,129	707	19.6	118	149	440	3,560	3,849
" 25, " "	3,007	801	25.9	158	162	481	4,000	4,360
Total 1 man, 7 days.	20,286	5,505	176.9	1,080	1,111	3,314	27,470	29,951
Average per man per day for 7 days	2,898	786	25.3	154	159	473	3,925	4,279
Total 1 man for 6 days, excluding Sunday, June 24,	18,157	4,798	157.3	962	962	2,874	23,910	26,102
Average per man per day for 6 working days	3,026	800	26.2	160	160	479	3,985	4,350

The amounts of nutrients and energy in the food eaten are found by applying the figures for composition in Table 1 to those for quantity in Table 3. They are summarized in Table 4.

It thus appears that these four young men, who had been selected from several thousand university students because of their combination of muscular strength and endurance, and the higher qualities needed for success in a severe physical contest, and had been in vigorous training for several months, on a diet such as experience implies to be fitted to the purpose, ate food supplying, on the average, per man per day:

	Average for 7 Days.	Average for 6 Working Days.
Protein	154 grams.	160 grams.
Fats	159 "	160 "
Carbohydrates	474 "	479 "
Total energy	4,279 calories	4,350 "
Fuel value	3,925 "	3,985 "

It is to be noticed that the figures for the total energy of the nutrients express the total heat of combustion. The fuel value is found in the digestion experiments as stated beyond.

Comparison of results of this and other studies. — Table 5 compares the results of the dietary study just described with those of a number of other studies of similar character. The figures for Nos. 2 to 8 of the table represent the food eaten by the members of the Harvard and Yale University crews while in training, first at Cambridge and New Haven and afterwards at Gales Ferry, for the race of 1898. Nos. 9 and 10 are for the foot-ball teams at Wesleyan University and the University of California. No. 11 is the diet for a single day of Sandow, who is remarkable for his feats of muscular strength, as lifting. With the figures for the food eaten by these athletes are given the average results of a considerable number of studies of people at ordinary occupations: college students and families of mechanics, farmers and professional men in different parts of the United States. All of the dietaries in the table belong to the general inquiry above referred to.

The protein of the food of the four athletes of the Harvard crew of 1900 averages 154 grams and the fuel value 3,925 calories per day. The average for the Harvard and Yale University crews in 1898 was almost exactly the same; protein 155 grams, and fuel value 3,955 calories. So close an agreement is doubtless accidental, but it is interesting that the quantities of food eaten by these four men should be so close to the averages found in the previous studies. It is evident that the quantities of food eaten by these men did not differ materially from those eaten by the other college crew men in training. The college foot-ball teams had much more of both the protein and energy in their daily food. The food of Sandow contained somewhat more of energy and very much more protein.

The number of studies thus far made does not suffice for an accurate measure of the food consumption of people of different classes at ordinary occupations in various parts of the United States. It seems probable, however, that the figures in this table are not very far from the actual averages. The ordinary food of students at different colleges and universities, as shown by the figures in the table for 15 college clubs, gave 107 grams of protein and a fuel value of 3,580 calories. The corresponding average in families of mechanics, farmers and professional men, as calculated for adult male members, is not far from 100 of protein and 3,315 of energy.

TABLE 5.— COMPARISON OF QUANTITIES OF NUTRIENTS IN FOOD OF ATHLETES AND PEOPLE OF ORDINARY OCCUPATIONS.

(Nutrients in food actually eaten per man per day.)

Reference No.		Protein. Grams.	Fats. Grams.	Carbohydrates. Grams.	Fuel value. Calories.
	ATHLETES.				
1	Four members of Harvard University crew, 1900.				
	First day, June 19	169	156	443	3,840
	Second day, " 20	183	177	471	4,195
	Third day, " 21	149	135	501	3,800
	Fourth day, " 22	155	168	482	4,040
	Fifth day, " 23	148	164	496	4,035
	Sixth day, " 24	118	149	440	3,560
	Seventh day, " 25	158	162	481	4,000
	Average 7 days	154	159	473	3,925
2	Harvard University crew at Cambridge, 1898	162	175	449	4,000
3	Harvard Freshman crew at Cambridge, 1898	153	223	468	4,470
4	Yale University crew at New Haven, 1898	145	170	375	3,595
5	Harvard University crew at Gales Ferry, 1898	160	170	448	3,945
6	Harvard Freshman crew at Gales Ferry, 1898	135	152	416	3,555
7	Yale University crew at Gales Ferry, 1898	171	171	434	3,940
8	Captain of Harvard Freshman crew at Gales Ferry, 1898	155	181	487	4,180
	Average Nos. 2-8	155	177	440	3,955
9	Foot-ball team, Wesleyan University	181	292	557	5,550
10	Foot-ball team, University of California	270	416	710	7,625
11	Sandow, "The Strong Man"	244	151	502	4,330
	PEOPLE AT ORDINARY OCCUPATIONS.				
12	Average 15 college clubs, U. S.	107	148	459	3,580
13	Average 14 mechanics' families,[1] U. S.	103	150	402	3,355
14	Average 10 farmers' families,[1] U. S.	97	130	467	3,375
15	Average 24 mechanics' and farmers' families,[1] U. S.	100	141	429	3,365
16	Average 14 professional men's families,[1] U. S.	104	125	423	3,220
17	Average 28 mechanics', farmers' and professional men's families,[1] U. S.	102	136	427	3,310

[1] Calculated for male members.

No. 1. Described above.

Nos. 2-8. Reported by W. O. Atwater and A. P. Bryant, Bulletin 75 of the Office of Experiment Stations, U. S. Department of Agriculture, Dietary Studies of University Boat Crews. These are Nos. 227-233, respectively, in the series of dietary studies referred to in note 7.

No. 9. Reported by W. O. Atwater, Report of Storrs' Experiment Station, 1891, p. 128.

No. 10. Reported by M. E. Jaffa, in Bulletin 84 of the office of Experiment Stations, U. S. Department of Agriculture. Serial number of study 268.

No. 11. Reported by C. F. Langworthy and W. H. Beal, in Report of Storrs' Experiment Station, 1896, p. 158. Serial number of study, 179.

Nos. 12-16. Reported by W. O. Atwater and associates in various Bulletins of the Office of Experiment Stations, and Reports of the Storrs Experiment Stations. Summarized by A. P. Bryant in the Yearbook of the U. S. Department of Agriculture, 1898, p. 439.

That athletes eat considerably more than people in ordinary life is what would naturally be expected. An especially interesting feature of

the food of the athletes is the much larger amount of protein in proportion to the fuel value than is found in the food of people with ordinary muscular strain; that is to say, in increasing their food over the ordinary consumption, the athletes added much more proportionally to the protein than to the other nutrients (fats and carbohydrates). The large proportion of protein in the food of men subjected to intense muscular strain has been a matter of frequent observation in the United States and Europe. Why and to what extent it represents a physiological necessity is not yet fully known. It seems very natural, however, that where great muscular strength and effort are needed, there should be corresponding muscular development, and this would be most naturally attained by the use of nitrogenous food.

(To be continued.)

PUERPERAL INSANITY.[1]

BY EDWARD B. LANE, M.D., BOSTON.

WHEN your president asked me to speak tonight on the subject of puerperal insanity, I told him that I felt somewhat embarrassed, as I was asked to talk about something which I believed did not exist.

I do not wish to be understood to deny that insanity occurs in conjunction with the puerperal state, for, unfortunately, this distressing complication is frequently seen. Nor do I wish to deny that the puerperal condition is not an exciting cause, for I know that it is. I object to the term "puerperal insanity" to define a distinct type of mental trouble, as I do not find such in practice.

Many years ago I asked myself this question: What is there diagnostic of puerperal insanity about this patient? — one against whose name in the clinical record stood that diagnosis. Can the alienist in going through the wards of a hospital for the insane for the first time, without assistance, name the cases of puerperal insanity from objective symptoms? I do not believe he can. At any rate I cannot. We can diagnose objectively general paresis, mania, melancholia and katatonia; but we must receive the history of recent childbirth before we make a diagnosis of puerperal insanity. This term is one of many descended to us from the old etiological classification of the English and Scotch writers. This has been more elaborately subdivided into insanity of pregnancy, puerperal insanity, and lactational insanity. Again, we hear of puerperal mania and puerperal melancholia. Such a nomenclature not based on mental symptoms alone leads us to hopeless confusion, and is most unscientific.

But you did not ask me to go into the endless subject of nomenclature of mental diseases,— a branch of medical science of which none of us may feel proud. I will only ask you to remember that I do not recognize a distinct type of mental disease the immediate result of the puerperal condition, and the obstetrician need not, in looking for the origin of these distressing symptoms, confine himself to incidents of the labor or its sequelæ.

It is commonly said that heredity plays an important part in the causation of puerperal insanity. This may be true, but I seriously question if it is any more potent in these cases than in insanity in general. It is always an important contributing cause; but it certainly is not a cause for our giving a more grave prognosis than we would in a case where there was no insane heredity.

At the risk of exhausting your patience I will venture to ask you to follow me in a hasty statistical inquiry. I was much interested in consulting the statistical returns of this subject, and I then asked the pertinent question; if the puerperal condition is an important factor in causing insanity it can be numerically expressed, if we can learn what is the excess of insanity among pregnant women over the amount of insanity among women in general between the ages of twenty and fifty. Let us take the facts in our own city, so far as we can get at them from the statistics furnished.

You already know that insanity is a disease of middle life. Census returns tell us that 70% of all insanity develops between the ages of twenty and fifty. It is highest relatively among those between thirty and forty; that is, the chance of becoming insane is greater between the ages of thirty and forty than at any other period of life.

There are today in our city not far from 280,000 women; that is, female population. Of these nearly one-half, or 135,000, are between the ages of twenty and fifty. Out of the total female population of the city 1.26 per 1,000, or 353 women, will be committed in one year as insane. According to the figures for the United States, 70% of these will be between the ages of twenty and fifty. But in our city there is a very large proportion of old people committed, and the true proportion would be a little over 60%. Sixty per cent of 353 would be 212 cases. We have a right to expect, then, no less than 212 women at the child-bearing age will become insane. How many of the women of this age are likely to be confined during the year? The vital statistics tell us that 18,000 living children will be born in our city during the year. There are no available figures as to the number of still births or miscarriages which may be expected to occur. This would be essential to an accurate estimate, but I will ignore it for the present. All but an insignificant number of these births will occur among the women of the ages chosen for our figures. If, then, insanity overtakes the 18,000 mothers in the same ratio as it will certainly occur among all women at this age, we may expect 28 cases of insanity to occur during pregnancy or soon after confinement. If we add to this, let us say, 2,000 more cases of miscarriage or still-births, we should have 31 cases of puerperal insanity. But the figures for Massachusetts for one year and those for the Boston Insane Hospital for ten years, which are nearly alike, show that only a fraction

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, February 27, 1901.

over 4% of cases among women are puerperal. (It is an invariable custom to tabulate the cause as puerperal in the case of any woman who becomes insane during pregnancy or soon after. This, by the way, against the figures of 6% and 7% given in earlier times in England and this country.) And 4% of our total of 353 cases of insanity among all women in Boston is only 14. So that we arrive at the very interesting result that, as a matter of fact, insanity associated with childbirth occurs only one-half as often as it does among women in general at the child-bearing age. To use the terms of the insurance actuary, it would be a good risk to insure a pregnant woman against insanity, or, at least, against commitment for insanity.

I confess I am surprised at the result of this query, and am tempted to inquire further and seek as to why it is so. Among the insane the single outnumber the married; and it is possible that mental defect manifests itself so early that a large number who are to become insane never marry.

I believe it is demonstrated that the puerperal condition is not an important factor in the causation of insanity.

To illustrate the present scepticism on the subject of puerperal insanity, I will give briefly the experience with so-called "puerperal insanity" at the Boston Insane Hospital for the past year. In this time we received 202 women patients, of whom 6 (only 3%) were considered as puerperal cases. Here I use the word "puerperal" in its broadest sense, including all cases when the mental disease came on during pregnancy, or the lying-in period, or during lactation. As a fact, in only one of these six cases did the symptoms begin within ten days of childbirth.

CASE I. Mrs. W., twenty-three years. Became melancholy seven weeks after her baby was born. Thought she had done wrong. She seemed to improve, and her family considered her nearly well when she relapsed, and when the child was three and one-half months old she was committed. She was confused, frightened, said she had let her husband go, and wanted to kill herself. She doubted her husband's identity. There were hallucinations of hearing, and she tried to jump out of the window after her husband.

Since admission she has been very dull, and will seldom speak to any one in the hospital. She speaks more to her husband; is good-natured, but apathetic. Sits like a bashful child before the physicians. She gained remarkably in weight. She does not improve, and probably never will. A case of hebephrenia.

CASE II. Thirty-four years of age; married. One week before admission gave birth to a dead child. She states that she felt no life for a month, and it is believed that the child had been dead that time. She was confined by a midwife, and had no physician in attendance. For two weeks after admission her temperature ran from 100° to 102°. A gynecologist saw her in consultation, and the uterus was curetted and placental tissue and pus removed.

Her first mental symptoms were hallucinations, and she was suicidal. Later she was delirious, noisy and good-natured. This was followed by depression with dullness. She recovered what was probably her natural mental condition (which was never of the best) in six months, and went home. This was a delirious mania (probably septic), followed by depression.

CASE III. Has been insane five years, following a miscarriage, which was caused by slipping on the ice. Four years ago she gave birth to a living child. Soon after became much excited, probably as a result of delusions. Tried to kill her husband. Thought her food was poisoned. Hallucinations of sight and hearing. Refused to eat at one time. Has grown demented. On admission here was quiet and listless. Probably a case of hebephrenia, which had become demented.

CASE IV. Forty years of age. Husband left her many years ago, and she has been living with another man, by whom she had children. October 4th, while six or seven months pregnant (she does not know which), she was admitted to the hospital. She had been suffering from poverty, and probably not properly fed. For three weeks has been actively deluded; thought food was poisoned; was frightened. Later thought she might be dead, and was to be judged. Asked saints to forgive her; apparently felt something akin to remorse, for her illicit relations with her companion. She improved mentally in a week, and in three weeks seemed rational. She was discharged, sent to a State hospital, where she could be confined. This case is called puerperal because she chanced to be pregnant.

It is quite like other cases which come to us which are not complicated in this way, and I think her privation had more to do with it than the pregnancy. This was called a case of acute delusional insanity.

CASE V. Thirty-two years of age; married. This patient, like the previous one, became insane in the seventh month of pregnancy. For two months she suffered from hallucinations of hearing, which caused her to become insane in October. The voices told her she must leave the house, which she finally did one night, when only partially clad. She broke into another house.

On admission she was very quiet, but anxious about her children. She was depressed, but the depression was evidently secondary to her delusions. Could answer all questions intelligently, but refused to speak unless addressed. Had to be urged to eat. This condition continued for a month. She was then transferred to another hospital, that she might be confined. Diagnosis was made of acute delusional insanity.

CASE VI. Twenty-two years old; married. Has had three children,—two dead; youngest is living; was born October 1st. Seven weeks after confinement she began to be insane. Had laughing spells, and cried a good deal, also. She had not slept; said she had worried. She was excited at times; thought people were down on her.

Since admission she has been somewhat depressed; confused at times. She has had hysterical attacks; at other times suddenly excited. This is probably a case of hebephrenia.

This year's record gives, perhaps, a fair example of an experience with puerperal cases. Only one of the six was, in my opinion, a case of mania, and this was similar to the cases of puerperal mania of the older textbooks. These six cases fall, then, into no less than four types of mental disease. The only case of mania was that in which no physician had attended her during confinement, and placental tissue had been retained in the uterus.

Before leaving this subject I desire to read the history of three cases which are more like the cases we read of in the textbooks, and which occurred before the last year. I think they are instructive, and more nearly what we have been accustomed to regard as puerperal insanity.

CASE VII. Twenty-two years old; married. Admitted January 31st. Primipara. Child nine days old. Family history was unknown. She was a Catholic, and had been married about a year; was not married by a priest, and this had worried her at times. She was in excellent physical condition. The labor was not especially severe. She was cared for by a careful and excellent practitioner. When the child was four days old she became exhilarated; she laughed and sang. Then she paid no attention to the baby. An eminent specialist saw her in consultation, and gave it as his opinion that there was no sepsis. She grew more restless, and would not stay in bed; removed the dressings and clothing. She thought she saw the devil. Five days after mental symptoms developed she was committed to the Boston Insane Hospital.

On admission she was profane, obscene and vulgar; extremely restless, and would not stay in bed. Temperature 102.2°; pulse 116; respiring freely; took her nourishment well. The day after admission, mental condition the same; pulse 116, fairly strong and regular. Purulent stain noticed on napkin. Vaginal douche of corrosive sublimate given. Temperature 102° A.M., 104.2° P.M.

A small contusion with small slough noticed on posterior wall of vagina, one inch above perineum. Vagina packed with iodoform. It was thought this would explain the temperature, but soon an abundant purulent discharge appeared. Temperature 105° A.M. It was evident that there was trouble other than the vaginal ulcer to account for her condition. A gynecologist was sent for, and patient was highly stimulated. The surgeon curetted the uterus, and removed considerable purulent matter. But, although she stood the ether well, the temperature rose, and the pulse became weaker. She died on the evening of the fourth day.

This was a case of septic delirious mania. It is a question if there may not have been a double infection here, as the maniacal symptoms are said to have appeared before the sepsis was apparent.

CASE VIII. Admitted September 5th; aged twenty. Primipara. Baby seven days old. This woman was refined and used to comforts. During pregnancy her husband had been out of work, and she was deprived of some comforts. An additional cause of worry was potent, as an indiscreet relative had heated discussions on religious topics, urging her to change her belief, and tried to destroy her confidence in her husband. At the time of confinement there was little to do with, and besides the worry was added the mortification of her poverty. She had lost much sleep during pregnancy. When the baby was five days old she became excited; laughed, got out of bed, and gave imperious orders. She locked herself in her room. She made mistakes of identity; thought she could mesmerize people. Refused food and medicine. Was very emotional.

On admission to the hospital was restless and excited. For the first week her temperature varied from 99°–102°, and it became normal eleven days after admission; that is, eighteen days after confinement. The perineum had several stitches, which were removed in due time. It was necessary to use artificial feeding. There was much insomnia. Hypnotics were used for five weeks. Great excitement continued for seven weeks, when she became quieter and seemed apprehensive. She now began to eat well.

During the months of November and December she was talkative, silly, and frequently quite excited for a day; at other times quiet and timid; but her physical condition improved. During January the maniacal condition persisted. She was extremely mischievous, and used vile language. In February a decided improvement was noticed, and she exhibited more self-control; and in the middle of February she expressed a desire to go home to her husband. She said she could remember many incidents of her illness, but it was very confused. She could not believe she had been in the hospital six months. On February 26th she had gained very rapidly, and was discharged recovered.

This may be considered a typical case of acute mania. It is not one of the short cases of delirious mania of septicemia, but it was the usual course of acute mania. There was some temperature which I believe to be due to some toxic substance, quite possibly due to an infection, but more likely not the common septic poison.

The mental strain from worry, the loss of sleep, the exhaustion incident to confinement, co-operated to bring on the nervous symptoms. We must not forget that undoubtedly there exists a varying susceptibility to this toxic substance (whatever it may be), and those most susceptible possess an idiosyncrasy such that this poison causes in them maniacal symptoms. We must not be too ready to say a patient has a neurotic temperament.

CASE IX. Admitted November 19, 1898. A woman thirty-two years of age. Was admitted in a condition of acute mania. She had been incoherent in speech, very restless and excited for the past week. Began by being hysterical, noisy and irrational. Claimed she was not sick, and

could get up. Thought the milk given her was poison. Became very noisy, and was untidy; was tied in bed. Had hallucinations of sight and hearing.

On admission was very restless, and it was necessary to tie her in bed. Could be urged to take a good amount of liquid nourishment. Erratic in conversation. Trional and sulfonal administered to procure sleep. In ten days she cleared up mentally, with a relapse on the twelfth day, when she was confused and restless. She improved rapidly after this. In thirty-two days she went home, and was entirely recovered.

This case is a very good illustration of the mental disturbances seen in puerperal mania, and I cite it here because the cause was due to an ischiorectal abscess, and the excitement came on within thirty-six hours after an operation for the abscess. No sleep after the operation, and acute delirious mania followed. There was undoubtedly some toxic infection here, although not a septicemia. The patient had been suffering much pain for two weeks before the operation. She had become reduced physically, and was very hysterical before the operation. Loss of sleep and pain had produced a certain amount of exhaustion of the higher nerve centres. It is fair to assume that two pockets full of pus in the lower pelvis had given rise to some toxic substance, which had entered the circulation, and a brief delirious mania followed. This condition is probably not more a true insanity than acute alcoholism, and a recovery is to be expected as soon as the toxic substance can be eliminated and a few nights' sleep obtained.

THE HOME TREATMENT OF TUBERCULOSIS *VS.* THE CLIMATIC TREATMENT.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

All treatment of pulmonary tuberculosis is in one sense climatic. Wherever you treat the disease certain climatic essentials are indispensable. These I consider to be: First and foremost, pure air; next, freedom from dust and high winds; a fair amount, at least, of sunshine; a reasonably dry soil, and freedom from sudden, great and frequent variations of temperature. There are other climatic and regional conditions desirable and beneficial, but not essential; namely, altitude, dryness of the atmosphere, equability of temperature, continuous clear weather, absence of excessive heat or cold. Some or all of these additional climatic conditions enhance, as we all recognize, the value of the climate, *per se;* but when they have to be obtained by compelling the patient to be acclimated twice over — first to the new climate and then again reacclimated to the old — it is a debatable question whether the additional gain is worth the price paid. There are also various other sacrifices which have to be made for the gain, which I will mention presently.

[1] Presented as a part of the discussion upon this subject at the American Climatological Association, May 31st, at Niagara Falls.

If, for example, the Colorado climate and that of Rutland, Sharon, Saranac or Lakewood, were equally accessible and equally easy of choice, I should say choose by all means Colorado, for it possesses a greater number of favorable climatic factors; but when we weigh the demands to be complied with in order to obtain the Colorado climate, by the resident of the East or North above those of the other near-at-home resorts, it is a question whether the additional climatic excellences are worth the additional cost.

Since we have arrived at a realizing sense of the fundamental principles involved in the hygienic-dietetic treatment of pulmonary tuberculosis, the importance of climate, though great as it is, is now held, and with truth, I believe, to be but one of the factors in the ensemble of the treatment. Formerly, as we know, climate was considered the predominating ray, the sole factor. At one time it was a warm climate like Florida, and the exodus of patients was in that direction. At another a cold climate like Minnesota. Then the altitudes, and the rush of patients was to Colorado. This magic of climate as the totality of treatment, as I have said, now no longer holds sway; but any region whose climate permits the patients to continuously, or as nearly that as possible, remain out of doors in pure air, is a favorable one for the hygienic-dietetic treatment. Viewed in this light the "home treatment," as here defined,[2] is qualified to accomplish favorable results, and those already obtained in Europe and this country attest the soundness of this proposition.

In the home climate, moreover, there is the indubitable advantage of retaining the patient in the same climate in which he has previously passed his existence, and where he must live — in a large majority of cases at least — the remainder of it. Whatever risk there is in a double radical change of climate is obviated. Even so enthusiastic a partisan of the Colorado climate as Solly writes: "It is fair to assume that about 50% of the total number coming to Colorado can return to their homes to live in safety; provided, of course, the danger to them in returning home is only climatic."

Furthermore, by treating the patient near his usual and accustomed residence, we take advantage of the psychic influence of familiar surroundings. A favorable mental attitude is no small factor in the cure of disease, as we all know. I recall the case of a patient whose improvement was more prompt and rapid from embracing the cult of "Christian Science," all through the hopeful mental attitude it placed him in, and the freedom from fear it produced. Proximity to friends and familiar scenes, if not abused, buoys up the spirits and strengthens the will; nothing is more depressing than nostalgia.

Again, the pecuniary factor is a very important consideration with a large number of patients. The expense of a long journey and residence in a

[2] It is understood that the term "home treatment" will be considered to mean the treatment in home climates; that is, in a hygienically suitable locality as near as possible to the patient's usual residence.

distant health resort, even if by dint of sacrifice and exertion it can be attained, is a source of more or less constant worry. "Here I am," says the patient, "spending all this money, and after all shall I recover?" "If I do not recover within such a time I shall be obliged to return, because my money will be exhausted." How often have our Colorado confrères reiterated the statement that the most essential requisite in coming to this resort is a well-lined pocketbook.

With the exception of Brehmer's and Dettweiler's experience and that of a few others in sanatoria, it was not until a comparatively recent date that even phthisiotherapeutists assured themselves or realized that pulmonary tuberculosis could be successfully treated in a home climate like that of England, Germany or New England. The favorable experience of the last decade in these countries has been a revelation, I think, to us all, and an attestation of the truth that no excellence of climate will compensate for the disregard of a carefully arranged plan of life, adapted to the individual patient, constantly insisted upon with authority, and supervised by the expert phthisiotherapeutist. If the strenuous life leads to moral victory and achievement, it none the less leads to success in the struggle against tuberculosis. Comparing sanatorium treatment at home with non-sanatorium treatment in a health resort, I doubt whether the additional climatic excellence compensates for the absence of the sanatorium régime. Try as he will, and be as faithful as he may, I do not believe it possible for the physician in a free resort to exercise that despotic power and personal influence over his patients which the physician in a closed resort is enabled to do. In the one case absolute power is possessed; in the other it is not. In either case a firm will and a sympathetic nature is essential on the side of the physician; but in the one case these attributes have full play, and in the other they do not.

It does not seem to me that we are yet in possession of sufficiently accurate and extended statistics of treatment, under the two different conditions here discussed, to judge, with any great precision, from the results obtained. The conditions as to stages of the disease, class of patients, detail of treatment, etc., vary so greatly that comparison of results seems both impossible and unfair. For example, at Rutland, out of an almost unlimited number of applicants, only the very incipient and most hopeful cases are selected; and to compare results obtained under these ideal conditions with those of other sanatoria or free resorts, where cases of varying stages and differing degrees of prospective favorable issue are received, would be manifestly unjust and misleading.

Then, again, before we are in a position to determine the end results, several years must elapse. Further, it seems to me that we must compare sanatorium results with sanatorium results, and open-resort results with open-resort results.

The statistics which have been used to show the advantages of the high altitude treatment over the home and sanatorium treatment, like the large number collected by Solly, and given in Hare's "System of Practical Therapeutics" and elsewhere, are those, it must be remembered, of ten years or more ago, before we thoroughly appreciated and employed, as we do today, the hygienic treatment of tuberculosis in all its strenuousness. The results we are obtaining today would, I believe, give a more favorable showing for the home treatment. Knoff[3] is the authority for the statement that cures effected in our home climates have been more lasting and more assured than cures obtained in more genial climates away from home. In this opinion concur Leyden, Gerhardt, Dettweiler, Walthers and others.

If other things were equal, which, as I have pointed out, they are not, I am inclined to believe that a sanatorium favorably located in the Rockies, Alps or other altitudes, conducted on the same lines as Dettweiler's at Falkenstein, would, with the same class and stage of cases, produce better results than a sanatorium in our home climates. Turban's elaborate report of results at Davos, published in 1900, appears to show this.

In conclusion, it must be a source of great congratulation to us all who are engaged in the treatment of tuberculosis, that the prospects of success in the home treatment appear so auspicious. It is the very small minority of the tuberculous who are able or willing to travel far afield for a resort in which to take the cure. The majority, for one reason or another, must, if the hygienic cure is attempted at all, undertake it near home.

Clinical Department.

A CASE OF MARKED CYANOSIS, DIFFICULT TO EXPLAIN.

BY SYLVESTER F. MCKEEN, M.D., BOSTON.

IN *The Boston Medical and Surgical Journal* of December 7, 1899, and of March 15, 1900, Dr. Richard C. Cabot reported two cases of "chronic cyanosis without discoverable cause." The following case presents quite a striking resemblance to these, and would seem to be of sufficient interest to warrant publication:

Henry H., a German, age fifty-three, packer in an iron foundry, came to the Medical Out-patient Department of the Boston City Hospital on May 6, 1901.

Family history.— Excellent.

Previous history.— About twenty years ago the patient had an attack of dyspnea for the first time, which laid him up for eight days. This came on suddenly, and was accompanied by no other symptoms, such as cyanosis, edema, palpitation, etc. Similar attacks have recurred at intervals of six months to two years. No other previous illness. Not subject to coughs. Denies venereal disease. Drinks one glass of whiskey, four glasses of

[3] Prophylaxis and Treatment of Pulmonary Tuberculosis, 1899.

beer, and two cups of coffee on an average daily. Smokes and chews fifteen cents' worth of tobacco per week.

Present illness.— He first noticed blueness of the face and hands about one year and a half ago. It came on suddenly, while at home recovering from one of his attacks of dyspnea above referred to, and has persisted with frequent exacerbations ever since. The cyanosis often increases suddenly, and his face and hands become "as blue as blueing," without any accompanying dyspnea or other symptoms of distress. He keeps right on with his heavy work, in spite of the marked cyanosis. Exertion does not seem to increase it particularly, nor cause any dyspnea. Increased blueness is seldom associated with dyspnea, although when he has one of his attacks of shortness of breath he is always more cyanotic than usual. About every two or three days he has attacks of blurring of the vision, followed by sweating and vertigo, when everything in the room seems to go round, and he is obliged to seize hold of some support to prevent his falling. Is not troubled with headaches, or noises in the ears. When very blue his hands feel cold and numb. For the past two years about, he has been subject to frequent attacks of diarrhea, sometimes causing prolapsus recti. Once there was blood in the stool. Appetite good. Sleeps well, but has to get up once every night to urinate.

Physical examination.— Well developed, but rather thin. Mind active. No dyspnea. Respiration 18. Extreme cyanosis of face, especially of the lips, tib of nose, and ears; small veins and capillaries of skin dilated. Hands and feet also very blue; most marked in a dependent position, less so when upright or horizontal. Circulation very slow in skin of other parts of body. An erythematous rash on shoulders and front of chest. Slight clubbing of fingers. Slight pitting over tibiæ.

Eyes.— Conjunctivæ injected; pupils equal and react; fundi show retinal veins engorged and filled with very dark blood, but are otherwise normal.

Mouth.— Tongue deeply cyanotic; gums swollen and bleed easily; many teeth loose and decayed; mucous membrane of cheeks and pharynx purplish.

Larynx.— Negative, except for congested appearance; no obstruction.

Pulse.— Rate 65; occasionally a little irregular, tension not high; walls of arteries slightly thickened and roughened.

Heart.— Area normal to percussion; area of flatness marked; apex beat in fifth intercostal space within the nipple line; action for the most part regular; no murmurs; aortic second not accentuated.

Lungs.— Somewhat hyperresonant over upper front; no dulness beneath sternum; no râles.

Liver.— Upper border of dullness begins at seventh rib in mammillary line, and extends two fingers' breadth below costal margin; edge not palpable.

Spleen.— Upper border of dullness at eighth intercostal space in midaxillary line; edge plainly felt an inch below rib margin, descending to two and a half inches on deep inspiration.

Abdomen.— Negative; tache cérébral absent.

Reflexes normal; sensation normal; a few small glands in post-cervical and inguinal regions. Temperature 98.1°.

A careful examination with the fluoroscope by Dr. F. H. Williams showed only emphysema, with consequent enlargement of the right heart, diminished excursion of the diaphragm, and depression of the liver; no mediastinal tumor or aneurism made out.

Urine.— Twenty-four-hour amount 70 ounces, normal color, acid reaction, specific gravity 1.015, trace of albumin, sugar absent; total urea, 35 grammes. Sediment contained a few granular casts, renal cells, leucocytes and abnormal blood corpuscles.

Blood.— Counts from the ear, finger and toe gave 9,440,000, 9,840,000 and 9,380,000 reds respectively; whites, 9,000, of which the polynuclears formed 74%, small mononuclears 18%, large mononuclears 6%, and eosinophiles 2%. Hemoglobin 120% plus.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M.D., BOSTON.

(Concluded from No. 24, p. 585.)

ON THE FAVORABLE INFLUENCE OF PREGNANCY UPON ENTEROPTOSIS.

Maillart[8] has for several years interested himself in observing the effect of pregnancy upon the large class of patients with entero- and gastroptosis at the Canton hospital in Geneva, and has come to the conclusion that patients emaciated and debilitated by this disease recover a remarkable degree of health on becoming pregnant. Far from completing the destruction of an already shattered constitution, he found that pregnancy arrested the disease, and often produced a complete disappearance of the symptoms.

The conclusions at which he arrives are, in his own words, the following:

(1) In cases of enteroptosis the advent of pregnancy increases the intra-abdominal pressure as soon as the uterus has attained a certain size.

(2) Under these circumstances pregnancy produces an improvement in the digestive and general nervous system, which reveals itself by an increase of from 2½ to 6 kilograms in the body weight between the time of impregnation and the close of the puerperal period.

(3) As a result of judicious treatment this improvement, which often approaches in character a complete recovery, may be made more or less permanent, so that in the months which follow the pregnancy a further increase in weight may result.

[8] Centrbl. f. Gynak., No. 50.

(4) In the cases in which other causes, such as renal disease, the neglect of proper treatment, etc., prevent this improvement from taking place, pregnancy produces in general no actual ill effects upon patients with enteroptosis,—surely not in the cases which suffer from constitutional neurasthenia. The measures taken to favor the permanence of the temporary improvement which takes place during pregnancy must be begun during the pregnancy, and continued during and after the lying-in period. All the cases which Maillart treated were provided with a suitable abdominal support before pregnancy, which was continued during the first four months, and then replaced by others of sizes suited to the gradual enlargement of the abdomen. The clothing was also so arranged as to depend entirely from the shoulders, and produce no pressure upon the waist or hips. After the child is born a Glenard bandage is applied at once over the ordinary bandage, in order to maintain the intra-abdominal pressure, and enable the patient to turn freely in bed without the falling of the entire abdominal wall and contents to one side. The period of rest in bed is made as long as possible, and should be naturally longer in cases of enteroptosis than in ordinary cases. After leaving the bed the same support is worn as before the pregnancy. Under these measures the abdomen almost completely recovers its former firmness and size, and the organs are maintained in their former positions and under suitable pressure. The proper training of the child as to regular times of feeding,—waking not more than once in the night, etc., is even more important for the good recovery of the mother in these cases than in others; and the nursing and care of the baby have a favorable influence upon the mother by directing her attention from the selfish consideration of her own symptoms to the care and upbringing of her baby.

LACTATION ATROPHY OF THE UTERUS.

L. Fraenkel[4] concludes as follows from a study of 95 cases which have been investigated in an extremely thorough and careful manner.

The controversy between authorities as to whether lactative atrophy of the uterus is a physiological or pathological phenomenon; whether the prognosis is favorable or unfavorable, and whether it is advisable to stop the nursing and resort to artificial feeding, may be answered as follows: Lactation atrophy of the uterus is generally a physiological process. It occurs in the vast majority of nursing women, but not in all. It corresponds closely to the universal physiological atrophy of the uterus, which occurs when the degeneration of the muscle fibres after parturition makes faster progress than the regeneration. This appears to occur most often in cases of malnutrition, and is also a normal condition in lactation. Lactation atrophy begins generally during or before the third month of nursing, and is recovered from as a rule spontaneously either after weaning or during the nursing period; very frequently it has disappeared by the seventh month of nursing, even in cases where the baby has not been weaned.

Recovery is so frequent that women who have nursed their babies for nine months or longer, and come to the physician with complaint of amenorrhea, are oftener found to be suffering from another pregnancy than a lactation atrophy; and when the complaints are of gynecological symptoms other than amenorrhea, a uterus of normal size or larger is found more frequently than an atrophied uterus. In case of persistent symptoms attributed to a lactation atrophy, between the third and seventh months of the nursing period, the baby should not be weaned, except in special cases where the symptoms are very severe or the general condition of the patient makes it advisable. (A slight or moderate anemia does not indicate weaning.) An examination of the uterus should be made every four weeks, with a view to determining whether it is increasing in size, remaining stationary or growing smaller. Under the latter conditions nursing should be stopped; under the second, stopped after the seventh month, and under the first, allowed to continue for a year.

In the cases in which the uterus continues to grow smaller, or does not increase after the seventh month of lactation, there is reason to fear that the pathological type of lactation atrophy may ensue. This is commonly a result of nursing for too long a period, though it occurs in only a small fraction of the number of women who nurse their babies too long. This "atrophy through superlactation" has a doubtful prognosis, even under prompt and efficient treatment, and frequently proves incurable. For these reasons a too long nursing period is to be avoided in all cases.

REPAIR OF LACERATED CERVIX, CURETTEMENT, AND RAPID DILATATION OF THE CERVIX.

Deaver[5] protests against the indiscriminate use and abuse of these three operations, which although in themselves excellent procedures and capable of accomplishing much good and the relief of suffering, are often the cause of harm, because performed without due deliberation and knowledge of the conditions and contraindications. Certain of the remarks and comments of the writer are so sensible as to be worthy of repetition and careful consideration on the part of the large number of practitioners who operate upon these cases.

A lacerated cervix, says the writer, in women who have borne children, is so common that it may be considered more of a normal than a pathological condition. In the absence of special indications such a cervix had better be let alone, for to operate under these circumstances subjects the patient to useless risks without a commensurate reward. If, however, there is eversion with exposure of mucous membrane to injury, or if ulceration be present, or an excessive amount of scar tissue,—and these conditions produce subinvolution or marked reflex symptoms,—then opera-

[4] Archiv. f. Gynak., 1900, xxvi, p. 121.

[5] Philadelphia Medical Journal, March 2, 1901.

tion is indicated. Any hereditary tendency to carcinoma would indicate operation in such a case.

As strong as are these indications for operative intervention, the writer does not regard it as justified unless there is freedom from all pelvic inflammatory processes and their results. Salpingitis, pyosalpinx, or adhesions, offer strong contraindications. Under these conditions abdominal section for the correction of the intra-abdominal trouble should follow immediately the repair of the lacerated cervix.

In the presence of endometritis great care must be exercised to prepare the endometrium, if this be possible, prior to the narrowing of the cervical canal; or, in other words, to decrease the discharge so that the new and narrow canal will carry it off. These operations, unless carefully and aseptically performed, as every surgeon of experience can testify, are capable of converting a latent salpingitis into an active one. This may be due to the introduction of sepsis through intrauterine douching or instruments, or the spread of sepsis through an infected uterine cavity, or the breaking up of periuterine adhesions, liberating septic foci which have been walled off. Washing out the uterus, except in septic conditions, also plugging the cavity with iodoform gauze, Deaver regards as vicious practices, and capable of exciting salpingitis. Even in septic conditions the washing should be carefully done and the packing introduced for the purpose of drainage, and not to its exclusion. Curettement of the uterine canal is a dangerous operation, and one which calls for great delicacy of touch and the most rigid observation of aseptic and antiseptic details. The writer then alludes to the indications for the operation as septic conditions of the cavity, both acute and chronic, and characterizes the so-called curative effect of the operation *per se* as nonsense, and one which should be relegated to the Christian Scientist. If the surgeon by logical reasoning cannot arrive at the conclusion to operate in a given case, he had better let it alone; an operation should be attempted only to remove an existing pathological condition, and not one which is simply supposed to exist, or which might exist.

The reliability of the information derived from an examination of specimens curetted from a uterine canal in which malignant changes are expected is doubtful. It is very difficult to make a positive diagnosis ofttimes between chronic benign lesions of the mucous membrane and early malignant changes; and the small and fragmentary nature of the specimens interferes with a satisfactory examination.

Dilatation of the cervix is an operation too frequently performed, and without a proper appreciation on the part of operators of its indications and dangers. The dilatation by tents or by gauze and sponge packing offers no advantages over divulsion, and is attended by much greater risks of sepsis. Divulsion should never be performed except under complete anesthesia and under the most rigid asepsis. Dilatation is indicated in dysmenorrhea due to cervical stenosis, as a preliminary step to curettement when there is a displacement of the uterus which is not adherent, and when there is an absence of tubal inflammation, either active or latent. Dilatation as an attempt to correct flexions of the uterus must be classed among the surgical failures, and in the condition of an infantile uterus accompanied by dysmenorrhea the operation will be merely an ineffectual attempt to restore a congenitally defective organ.

The necessity for careful asepsis and delicate manipulation in these operations would indicate that their performance should be confined to the realm of surgery, and not classed as work which is the duty and prerogative of the general practitioner of medicine.

CYST FORMATION IN OVARIAN TISSUE LEFT AFTER OVARIOTOMY.

Ehrenfest[6] writes as follows: It is as yet undecided whether the practice of leaving a portion of the ovary in certain gynecological operations is an advantage or a disadvantage to the patient. The opinions of the best authorities are directly opposed to each other, and many additional statistics will be required to settle the question. The observations of Fischer[7] and Waldstein[8] have an interesting bearing on this question. Cases of cyst formation in portions of ovaries left behind at operation, either intentionally or unintentionally, are reported. Such examples are not very common; perhaps about as common as the development of carcinoma in the stump of a cervix left after supravaginal amputation, but nevertheless commoner than is generally believed.

Martin[9] says: It seems to me a question worth serious consideration whether ovaries in which small cystomata have developed and which lie with the diseased tube in a diseased peritoneum ought not to be removed, together with the tubes. Martin is inclined to think that they ought to be removed, as he has had to operate a second time in six instances for the removal of ovarian tissue left at the first operation.

In American literature the following instances of cyst formation in ovaries left behind at operation have been recorded: H. C. Coe[10] reports a case in which the left tube and ovary and the right tube without the ovary were removed per vaginam on account of a gonorrheal infection. Pain continued after the operation. Later a tumor the size of an orange was found to have developed to the right of the uterus. In May, 1897, a cyst of the right ovary, which was only slightly adherent, was removed by a median laparotomy.

At a meeting of the New York Obstetrical Society in February, 1900, Coe again reported such a case. In 1897 the left tube and ovary were

[6] Centralbl. f. Gynak., 1901, No. 8.
[7] Centralbl. f. Gynak., 1900, No. 31.
[8] Centralbl. f. Gynak., 1900, No. 40.
[9] Eulenberg's Realencyclopedie, 1885, Bd. vi.
[10] American Gynecological and Obstetrical Journal, December, 1897.

removed by a laparotomy. In March, 1899, owing to acute symptoms the right tube, which was thickened and obstructed, was also removed, but the ovary, which appeared to be normal, was left behind. In February, 1900, a third laparotomy had to be done for the removal of a cyst of the right ovary, the size of an orange, which had caused severe symptoms. In the discussion Waldo reported that he had recently observed a similar case, and McE. Emmet reported 2 such cases.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting February 27, 1901, DR. E. S. BOLAND in the chair.

DR. EDWARD B. LANE read a paper entitled

PUERPERAL INSANITY.[1]

DR. ARTHUR C. JELLY: I should agree with Dr. Lane in general, and especially in what he said from the specialist's point of view, about being unable to regard puerperal insanity as an entity. For the obstetrician, however, there are certain advantages to be gained by considering together these cases of mental disorder which he meets in practice now and then under conditions more or less closely associated with the puerperal state, and where this appears to be at least an exciting cause. Because, if the attending physician knows that certain women are likely to develop insanity at such times, he has an additional reason for guarding against exhaustion and for meeting symptoms of nervous irritability when they first appear. It is true that sepsis is bad enough, but insanity due to sepsis is worse. Though less frequent than formerly, undoubted cases of this sort have not entirely ceased to appear. Moreover, it is not impossible that an existing sepsis may sometimes have been overlooked in certain cases where we have inferred that death was due to simple exhaustion, because the temperature was not very high. In the *Lancet*, 1898, No. II, page 83, a death was reported from puerperal septicemia where the temperature was subnormal throughout, though tested by two thermometers.

As Dr. Lane has said, it seems probable that there are toxic influences as yet not at all understood which lead to forms of mental disorder during puerperal states. This is another reason for careful attention to the eliminative functions.

When called to see these cases at home, one is usually asked, "Is this merely a temporary mental disturbance that will not get very severe, or is it an attack of real insanity?" Because, while any sacrifice is not too much for the family to make for a few days, if the attack is likely to last long, or to be very severe, the patient must usually be sent to an hospital for insane. In these cases, symptoms due to alcohol may simulate insanity so closely as to make a diagnosis very difficult. Women who are ordinarily abstinent frequently take liquor at the menstrual period, during pregnancy, after a miscarriage or confinement, or take ale regularly while nursing a child. Thus it frequently happens that a woman whose nervous system is unstable, who is neurotic, or neurasthenic, or epileptic, or slightly weak-minded, presents symptoms due partly to alcoholic and partly to other conditions. The picture thus presented may be very different from ordinary delirium tremens. In fact, there may be no more tremor of tongue and hands than seems consistent with the state of mental excitement; and the excitement may seem naturally to follow from the delusions of the patient. The common hallucinations of sight associated with crawling things may be absent, while other visions may or may not be present; and hallucinations of hearing are quite as common as those of sight.

I have seen several cases of this sort. If the patient can be deprived of alcohol, it will usually be possible in a few days to decide whether the attack is due largely or wholly to alcohol. Such are likely to be of short duration, though they sometimes last several weeks. Moreover, such patients are frequently so excitable that it is difficult to keep them at home even for a few days. Epileptics during confinement or shortly afterward are especially liable to have convulsions, or attacks of violent excitement, which appear to come instead of convulsions.

I have the history of one case of hystero-epilepsy who was formerly under Charcot's care, whose first child was stillborn after a long labor and the use of forceps. Two convulsions quickly followed delivery, and within two days an attack of violent excitement, which lasted less than a month.

In somewhat the same way a woman who has never controlled her emotions or passions will sometimes become excited and violent at such times, and present such a clinical picture that only close observation for several days will enable the physician to decide whether she is insane or not.

Such a case I saw recently. A multipara, in poor physical condition, had a miscarraige, followed by profuse hemorrhage, for which she was packed by a competent physician. She passed a sleepless night. The next day she refused the doctor's services, and would not talk to anybody. The following day, after another night without sleep, she refused food of all sorts, lay on her face in bed, would not speak. When the physician pointed out to her the danger of neglect, and urged treatment, she kicked him away from the bedside. Later in the day she declined to have anything to do with another physician. At 5 P.M., however, she talked with me in a calm and rational manner, took liquids promptly, but showed at times a tendency to be flighty and silly. She promised to allow the removal of the packing. The next morning she kept her promise, and agreed to go to the City Hospital

[1] See page 606 of the Journal.

for further treatment. When the ambulance arrived she declined to stir, but was calm. Soon afterward, however, she became excited, talked loudly, threatened her husband in most violent language, and appeared to be utterly beyond reason or control. I found the husband taking care of the two children on the sidewalk. He said it was not safe for them to go in, for she had repeatedly bruised him and torn his clothing in former attacks of temper.

The following morning she was civil to everybody, and submitted to treatment. She has shown no mental symptoms since.

This woman presented on one day a very good picture of resistive depression tending to stupor, due to exhaustion, and on the next symptoms of marked excitement. Either, if persistent, would have warranted a certificate of insanity.

I have related this case in detail because it seems to me to illustrate so well the possibility of grave error unless the physician uses great care and insists upon such deliberation and delay as to render it certain that the disturbance is more than transitory. In the prognosis of the mental changes seen sometimes early and more frequently late in pregnancy, one should be somewhat guarded; for, though the symptoms are usually mild and transitory, two cases about which I knew something died apparently from exhaustion, and several have developed chronic insanity.

Moreover, after miscarriages severe forms of mental disorder may arise.

DR. SARAH E. PALMER: I have had very little experience with puerperal insanity. I recall one case I saw at the New England Hospital. A woman was brought in in labor. She had been ill-treated and underfed, and had puerperal insanity, we thought, as a result of acute anemia.

DR. BOLAND: I feel that the section is under obligation to these gentlemen for the pains they have taken in presenting this subject. The subject has not been presented in the section for a number of years at least. As I remember my insane-hospital experience twenty odd years ago, we used to get an occasional case of that kind coming in shortly after delivery, and we were generally hopeful of recovery, as of any acute case. I was a little surprised, when I left the hospital fifteen years ago, that I did not see more cases of puerperal mania. I think in fifteen years I have only seen one case I could class as such. In this case there was a temperature which, according to the old test, would put this case out of the category. The case made a good recovery. The general practitioner I think sees the class of cases Dr. Thompson referred to — the cases of transient mental disturbance accompanying pregnancy — very apt to blossom out at delivery, and a little different type apt to come from the exhaustion of lactation. These cases usually occur among the poorer classes who have to struggle to make both ends meet, often have thoughtless husbands and a family of children to look after. The condition is one of anemia, exhaustion, etc., readily relieved by intelligent treatment at home, if they have the means.

AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-SECOND ANNUAL MEETING, HELD IN BALTIMORE, MD., MAY 7, 8 AND 9, 1901, THE PRESIDENT, DR. ROSWELL PARK, OF BUFFALO, N. Y., IN THE CHAIR.

(Concluded from No. 24, p. 593.)

DR. ROBSON read a paper entitled

THE SURGICAL TREATMENT OF CHRONIC ULCER OF THE STOMACH,

and stated that the treatment of these cases is at first essentially medical. He compared the treatment of ulcer of the stomach with that of ulcer of the leg, and particularly referred to the tendency to relapses. Twenty-three affections were referred to as complications of the condition, which were looked upon as serious menaces to the treatment of the ulcer. He believes that about 25% of cases of gastric ulcer treated medically died, while only about 16% treated surgically died, according to statistics a year ago; but at the present time, while the percentage death rate in cases treated medically remains about the same, it has been reduced to 5% under surgical treatment. A number of operations were mentioned from which one could take his choice, and great stress was laid upon the importance of the proper preparation of the patient before operation. Each operation was described in some detail, and cases illustrating each form of operation, together with the results obtained, were quoted. The number of operations performed by the author, divided up according to the number performed of each kind, were given, and the method he employs in stomach and other operations, involving the making of an anastomotic opening between the hollow viscera, was described. The author demonstrated the method, which consisted practically of the employment of a method of suturing over a decalcified bone bobbin. The advantages claimed for the method are: (1) That it secures the opening, being of the exact size intended, and that there is no possibility of the passage being made too small by the drawing up of the sutures before the knots are tightened; (2) that it secures an immediately patent channel between the two anastomosed viscera; (3) that the bobbin protects for from twenty-four to forty-eight hours the new line of union from pressure and from the irritation of the visceral contents; (4) that it facilitates the application of the sutures, and so adds to the expedition of union by sutures; (5) that no foreign material is left in the alimentary canal which may irritate or cause subsequent trouble, for the bobbin rapidly dissolves in the alimentary juices; (6) that the method has now been proved by ample experience to be rapid, easy, efficient and safe.

The discussion on the foregoing paper was opened by DR. WILLIAM J. MAYO, of Rochester, Minn., who considered at some length the treatment of open ulcer of the stomach by gastro-enterostomy, which he considered the most generally indicated operation for this condition,

in view of the following reasons: (1) The varying extent and reasonable probability that more than one ulcer exists; (2) the common location of the ulceration; and (3) the impossibility of locating the exact site of the ulcer in many cases.

In some few cases presenting special features he believed that excision or other form of surgical procedure is indicated. The symptoms, he stated, depend somewhat upon the situation of the ulcer, the most common location being near the pylorus, which position may introduce certain mechanical features, and in the relief of these secondary phenomena, in his opinion, the operation achieves its triumphs. The relief of hyperacidity and a prompt emptying of the ingesta, preventing irritation and aiding nutrition, are secured by gastro-enterostomy.

Reference was made to the fact that the earlier reports on this subject demonstrate the existence at that time of a belief that the stomach was always contracted, but later reports have proven the error of considering this a fixed condition, although it is no doubt true in a majority of cases. In acute ulcer the stomach is usually small, and if the ulcer is not in the vicinity of the outlet it will probably remain so. On the contrary, it is during the healing process that many ulcers in the pyloric region become most troublesome. Ulcers in this situation are often extensive, and in chronic cases, perhaps, but partly cicatrized, and obstruction of the pyloric orifice may take place by distortion or narrowing of the opening, irregular symptoms of the unhealed portion of the ulcer being manifest, in addition to the dilatation. In these cases periods of health alternate with symptoms of open ulcer, which are later followed by signs of open ulcer in a stomach more or less dilated. Most of the cases when once cicatrized remain healed, although a few sometimes develop into open ulcer. While the capacity of the stomach is not usually materially altered in cases of gastric ulcer, when this condition does exist it has a surgical significance.

He then made a comparison of the results of gastro-enterostomy in (1) ulcers in the pyloric region with a normal or enlarged stomach, and (2) ulcers in a contracted stomach, and stated that, in cases coming under the first group, gastro-enterostomy is the operation of choice, as it delivers the ingesta at a point sufficiently remote from the disease to prevent irritation, and the healing process is not interfered with and develops rapidly; immediate and satisfactory relief for the mechanical condition is obtained, and in five gastro-enterostomies performed under his observation all were speedily and permanently cured.

Reference was made to a pyloric spasm produced by a small ulcer at the pylorus, by which symptoms resembling mechanical interference are produced. While the author considers that pyloroplasty is fairly effective in this form of the disease, he states that it does not compare with the benefits derived from gastro-enterostomy, although the division of the pyloric sphincter terminates the spasms, and the enlargement of the opening exerts a healing influence on the ulcer. Gastro-enterostomy on the small stomach, affected by ulcer, does not as a rule give immediate relief, although the ulcer will eventually heal; but the results are not so good as in the other class of cases. The author then referred to the use of the Murphy button, and the union of the jejunum to the anterior wall of the stomach as near the greater curvature as possible, which operation he considers equally as good as the posterior, and easier of performance. He stated that three-fourths of the cases which had come under his observation had been operated on for the relief of non-malignant disease, largely pyloric obstruction, the result of healed ulcer; and that there had been but one death in over 40 cases. In malignant cases the death rate was over 25%.

DR. W. G. MACDONALD, of Albany, reported two cases of gastro-enterostomy for the relief of chronic ulcer of the stomach. One case, which had existed for eight years, did very well for ten months, when distinct symptoms presented themselves of a well-developed tumor in the region of the pylorus, the patient dying shortly afterward of carcinoma of the stomach. The second case was very similar, except that the improvement following the operation lasted for a somewhat longer time. In his opinion the ideal operation for these conditions is extirpation of the ulcerated surface, even though it involves resection of the stomach or partial gastrectomy.

DR. WILLIAM L. RODMAN, of Philadelphia, called attention to the fact that malignant degeneration frequently takes place on the site of an old benign ulcer, and also that the great majority of gastric ulcers are situated posteriorly and not anteriorly. In his opinion adhesion plays a very important part in these conditions; but he felt that if the ulcer is anterior and free from adhesions the operation should be done, while if it is posterior it is out of the question.

DR. ROBSON did not close the discussion, except to thank the gentlemen present for the interest they had taken in his paper.

DR. R. MATAS, of New Orleans, read a paper on

ARTIFICIAL RESPIRATION,

and demonstrated a new apparatus therefor.

THIRD DAY.— MORNING SESSION.

DR. R. MATAS, of New Orleans, read a paper on

THE TREATMENT OF THE ARTERIOVENOUS ANEURISMS OF THE SUBCLAVIAN VESSELS,

and reported a case of bullet injury occurring in a man aged twenty-four years, in whom the right subclavian artery and vein had been perforated through the scalenus auticus. The bullet had also injured the brachial plexus, causing paralysis of the corresponding upper extremity. The operation was performed ten days after the injury. An osteoplastic resection of the clavicle with disarticulation at the sternoclavicular joint was made under local infiltration anesthesia with

Eucain B., and a temporary traction loop of silk was applied under the first portion of an anomalous subclavian artery, the innominate being absent. The vein was provisionally compressed above and below the anastomotic orifice. Notwithstanding complete control of the subclavian at its origin, profuse hemorrhage took place from the anastomotic orifice when the vein was detached from the artery, the bleeding stopping when double ligatures were applied above and below the perforation in the artery. The bleeding indirectly came from the vertebral and internal mammary. After dividing the artery between the ligatures, the orifice in the vein was closed by lateral suture, and the venous circulation was reestablished. A bullet, undeformed, 38 calibre, was extracted. Shock followed, but patient was restored by saline infusion. Recovery with partial loss of hand and forearm from mortification, caused by arterial ischemia and insufficient collateral circulation. Primary healing of operative wound. In reviewing literature of the subject the author referred to 15 cases of this rare injury which had been recorded since 1829, when Larrey described the first case. Of these, only 4 had been operated upon. The indications for intervention, the prognosis and details of the operative technic closed the paper.

This paper was discussed by Dr. Arthur Dean Bevan, of Chicago, Dr. W. S. Halsted, of Baltimore, Dr. Theodore A. McGraw, of Detroit, and closed by Dr. Matas.

Dr. E. H. Bradford, of Boston, read by title a paper on

SUBTROCHANTERIC OSTEOTOMY.

Dr. Albert Vanderveer, of Albany, N. Y., read abstract of paper on

PHLEBITIS FOLLOWING ABDOMINAL OPERATIONS.

The great field of abdominal surgery has been so carefully and thoroughly investigated, and the operative technique perfected to such an extent, that we go on doing operations with, perhaps, as little strain and anxiety as used to present to the operating surgeon in much less serious surgical work; yet, occasionally, some unlooked-for complication will arise. My abdominal work gives me more anxiety during an epidemic of grippe. Acute perforative appendicitis is more prevalent in August and September, because of the diet in which young people indulge. Also in December and January, because of exercise and exposure. Only lately have I had that disquieting symptom of phlebitis—four cases in the past two years. In operations deep in the pelvis, ligating the uterine and ovarian vessels and applying a mass ligature, it is fortunate we do not have more serious complications than is generally met with. Where these do arise suspicion may occur at once as to some failure in technique; but we should consider the great range of pathological lesions met with in the pelvis. It is very unpleasant, but very necessary in these cases, to keep the patient two or three times as long as promised at first.

In the following cases it is well to be remembered that they came somewhat near each other, and immediately after moving into and beginning our work in a splendid new hospital plant. Our other operations of every kind were doing well, and every usual precaution had been exercised.

Case I. Mr. H. N. S., age fifty-eight; a very rare case. Angioma in connection with the lobelus spigelii; removed by Dr. Macdonald and myself. Two weeks later patient developed marked symptoms of phlebitis in the left leg. Under treatment the edema and swelling ultimately disappeared, but it was over three months before the patient regained entire use of his leg.

Case II. Mrs. A. F. C., age forty; double ovarian tumor removed. On the twelfth day after the operation, phlebitis of the left leg appeared. Under treatment the patient made a good recovery in three weeks.

Case III. Mrs. J. N., age forty-four. Patient gave a long history of disease. An operation was performed and a large fibroid was removed. Patient did well until two weeks later, when a distinct phlebitis of the left leg appeared. Under treatment the patient recovered, and was discharged from the hospital four weeks later.

Case IV. Mr. W. H. B., age twenty-nine; strong and healthy. Gave a history of four or five attacks of catarrhal appendicitis. The usual operation was performed and appendix removed, seven inches long, with concretions in distal extremity. Patient developed phlebitis of the left leg on the fifth day. Treatment usual, and a good recovery resulted. There was never any evidence of pelvic complication.

The literature on this subject is very scarce, and there is great question as to whether phlebitis in these cases is of septic origin. In my own cases I am not altogether sure but that the tight bandage may have had something to do with at least two of them. Never has there been delay in the union of the wound.

Pain was one of the pronounced symptoms. When the lesion presented there was also a varying and accelerated temperature and pulse. Sex makes no apparent difference, neither does the nature of the operation. In all four cases the patient was in a horizontal position, so there was no extra pressure upon the vessels of the extremities. The pelvis was not elevated. Loss of blood slight. Patients all strong previous to the operation, with the exception of Case I. Ligatures used were silk; no catgut in the peritoneal cavity.

Phlebitis may be due to the anatomical distribution of the veins on the left side, as in varicocele. This may have some bearing on the pathology.

Constipation must always be overcome. Ether was used as the anesthetic. Urine carefully kept track of.

I quote reference to Dr. Strauch's paper on his experiences with ether narcosis, coupled with the high pelvis position, from which he draws the deduction that these two reasons combine to cause phlebitis, and especially of the left lower extremity in all cases.

The above paper of Dr. Strauch was reported in 1894, and since that time very few cases have been reported to the profession.

Treatment certainly consists in rest, elevation of the limb, free movement of the bowels, anodynes to control pain; later, hypnotics to afford sleep, diffusible stimulants and tonics as may be required.

DR. WILLIAM J. MAYO, A.M., M.D., of Rochester, Minn., read a paper entitled

AN OPERATION FOR THE RADICAL CURE OF UMBILICAL HERNIA,

stating that patients suffering from umbilical hernia are usually obese, with attenuated muscles. It is sometimes wise to reduce the weight before operation. The neck of the protrusion should be exposed early and its omental contents ligated off at this point, saving time. The writer has made the following method nineteen times. The steps of the operation are as follows: A traverse elliptical incision is made at the base of the hernial protrusion to and through the peritoneum. Traction upon the hernia exposes its contents at the point of entrance. Return of intestine, if present, and ligation of extruded omentum. Exposure of the aponeurosis above and below the margin of the incision. The lower flat of aponeurosis and peritoneum is slid upward three-quarters of an inch into a pocket previously formed, between the upper margins of aponeurosis and the peritoneum. Retention by two rows of buried sutures. The sliding can be made from side to side in the same manner as was so performed in ten of the nineteen reported cases. If the ring is very large the overlapping from above downward is easier of performance.

DR. A. J. OCHSNER, of Chicago, considers that there are four methods of treatment of umbilical hernia in the adult which are worthy of consideration, and he briefly describes each one. A few cases he referred to in some detail as illustrating the various methods, and the speaker felt sure that any surgeon who had once tried Dr. Mayo's method was convinced of its value. After the operation has been completed the vomiting or straining does not seem to make any impression upon the repaired portion of the abdominal wall. In his opinion the method had so much to recommend it that it is not surprising it should have been invented independently by at least three different surgeons, of which Dr. Mayo was undoubtedly the first by several years.

DR. JAMES E. MOORE, of Minneapolis, Minn., presented a paper on

PREVENTION AND CURE OF POST-OPERATIVE HERNIA.

Ventral hernia is rare among good operators, except after operations for acute appendicitis. The causes of ventral hernia are sepsis, improper closure of the wound and drainage. The location of the wound is of less importance than its proper closure.

When rational principles are adhered to the exact manner of carrying them out may be governed by the operator's personal experience. Each tissue should be united to its own kind by through-and-through stitches of silk-worm gut and buried sutures of absorbable material. Buried sutures of unabsorbable material are objectionable and unnecessary. The crossed suture of Dr. Fowler is a very good one, but requires more time to apply, and causes more pain when removed than the through-and-through suture. Always avoid drainage when possible. Most cases of pelvic surgery requiring drainage are best drained through the vagina. The same rules should govern the treatment of post-operative hernia that govern the treatment of other herniæ. Operation is the only treatment to be considered, and it should be done early.

The prognosis after operation is good. In operating we should restore the parts to their normal relations, and hold them there until nature has united them. The peritoneal cavity should always be opened. Scar tissue should all be dissected away, and the various layers of the abdominal wall isolated, after which the wound should be closed by through-and-through sutures of silkworm gut and buried animal sutures. It is very important to bring the muscular tissue together. Simple cutting out of the scar and approximating the freshened edges will lead to disappointment.

This paper was discussed by DR. ARTHUR D. BEVAN, of Chicago, and closed by DR. MOORE.

AFTERNOON SESSION.

DR. S. H. WEEKS, of Portland, read a paper on

FRACTURES AND DISLOCATIONS OF THE SPINE,

which was discussed by DRS. JOHN C. MUNRO and S. J. MIXTER, of Boston, and DR. R. H. HARTE, of Philadelphia. The author did not close.

DR. CHARLES A. POWERS, of Denver, presented with photographs a paper on

GIANT SACROCOCCYGEAL TUMORS.

The subject of especial observation was a male child first seen at three months of age, at which time there was found an enormous growth occupying the sacrococcygeal region, extending laterally to the buttocks and forward in front of the anus. It was irregularly ball-shaped, and in size as large as the head of a child of six years. Below and in front the growth was cystic; above and laterally it was firm, and in places nodular. The skin over the tumor was of a bluish-red over the cystic parts, normal above and at the sides. Deep palpation showed no gap in the bony structures. There was nothing abnormal about the rectum. The tumor was moved by the gluteal muscles, but the tension of the mass was not changed when the child cried. There was no paralysis nor anesthesia of the lower extremities. No operation was advised, and the growth underwent spontaneous contraction. The skin did not

ulcerate, the contents of the cystic portion were absorbed, and when the child was three years and nine months old the tumor had shrunk to the size of a boy's fist and was well flattened out over the sacrococcygeal region. The boy is as strong and healthy as other lads of his age, lies on his back and sits like other children; except for its mere presence the tumor gives no symptoms.

While this growth lacks pathological confirmation, it is assumed that it is a teratoma or embryoid tumor having a double germinal substratum. A certain number of such tumors have been observed by German and French writers, and when pathologically examined have been found to contain the greatest diversity of tissue: cysts lined with various forms of epithelium, intestinal remnants, masses of gliomatous tissue, smooth and striped muscle fibre, bone, cartilage, etc.

The question of operation must be decided by the surgeon in the individual case. In general it is recommended that operation be deferred until the child reaches such an age as to enable it to successfully withstand operative procedure. The author's case shows that spontaneous contraction may occur.

THE RADICAL CURE OF INGUINAL AND FEMORAL HERNIA,

with a report of 800 cases operated upon from 1891 to 1901, was the subject of a paper by DR. W. B. COLEY, of New York, which was discussed by DR. J. COLLINS WARREN, of Boston, and DR. W. S. HALSTED, of Baltimore, DR. COLEY closing.

THE USE OF SILVER WIRE AND ELECTRICITY IN THE TREATMENT OF ANEURISMS,

with report of cases, was the title of a paper read by DR. LEONARD FREEMAN, of Denver. Discussion was participated in by DR. J. M. T. FINNEY, of Baltimore, DR. DEFORREST WILLARD, of Philadelphia, and DR. R. MATAS, of New Orleans, DR. FREEMAN closing.

DR. W. W. KEEN, of Philadelphia, read a paper entitled

RESECTION OF THE CHEST WALL FOR A LARGE SARCOMA; SUCCESSFUL USE OF THE ANTI-STREPTOCOCCIC SERUM.

The author referred very fully to the details of the operation, together with the condition of the patient before and after. In concluding his remarks he called particular attention to: (1) The method of separating the tumor from the chest wall so as to determine more exactly the limits of the disease and lessen the size of the opening to be made in the chest. (2) The division of the ribs anteriorly and posteriorly prior to opening the pleural cavity; this diminished very much the period of danger in the collapse of the lung. (3) The use of Fell's apparatus, which was not satisfactory in this case, and for which he prefers to substitute the apparatus of Dr. Bloom, of New Orleans, which he then showed to the association, or the apparatus of Matas, which was then demonstrated by its inventor. (4) The suture of the lung to the chest wall, which was followed by no untoward surgical result. It diminished very greatly the amount of post-operative pneumothorax, and in fact one might almost say abolished it. (5) The use of the antistreptococcic serum, and as to whether it was the cause of the fall in temperature or only a coincident, the results seeming to be so striking. (6) The examination of the blood, which was of great value as showing the reason for the continued high temperature, and led to what the author believes to have been the proper treatment for the condition.

In the opinion of the speaker it is too early to determine what will be the future of the patient; but up to the present time, a period of nearly seven months, the results have been entirely satisfactory.

DR. M. L. HARRIS, of Chicago, read a paper on

MOVABLE KIDNEY; ITS CURE AND TREATMENT.

which was not discussed.

The following papers were read by DR. S. J. MIXTER, of Boston: (1) Two cases of abdominal contusion: (*a*) "Fracture of Spleen-Splenectomy, with Recovery"; (*b*) "Fracture of Kidney-Nephrectomy, with Recovery"; (2) "Nephrolithotomy on both Kidneys"; (3) "New Method of closing the Defect following the thorough Removal of the Breast."

These papers were discussed by DR. J. COLLINS WARREN, of Boston, DR. J. M. T. FINNEY, of Baltimore, and DR. W. H. CARMALT, of Boston, but DR. MIXTER did not close.

DR. MATAS exhibited an apparatus which he used for local infiltration anesthesia. It consisted of a metallic (sterilizable) cylinder provided with an accessory gauge which indicated the level of the fluid within. The cylinder (capacity eight ounces) was filled with a weak Eucain B. solution ($\frac{1}{2}$, $\frac{1}{10}$ and $\frac{1}{100}$ of 1%) and was charged with a small air pump, which forced the fluid into the tissues by simple pneumatic pressure. After charging the cylinder the pump is detached, and the cylinder is connected to the needle and tubing by which the fluid is injected into the tissues. The advantages of this apparatus are, that it facilitates the introduction of large quantities of anesthetic fluid (Eucain B. dissolved in .8 salt solution) and completely edematizes the field of the operation by a process of almost continuous infiltration and without the interruptions caused by the frequent transfer of the ordinary syringes. It is especially advantageous when massive infiltrations over large areas are indicated with extremely weak solution, which anesthetize the tissues by their physical action alone rather than by the chemical analgesic action of the drug.

He had used the appliance all of the past winter, and had been much pleased with the results obtained in a great variety of operations, many of which without its aid would have been entirely beyond the scope of purely local anesthesia. It is also the most satisfactory apparatus that he has used for extensive hypodermoclysis in shock,

hemorrhages and other conditions in which it is desirable to inject rapidly a large quantity of physiological salt solution under the skin.

DRS. HEARN and ROE read a paper on

PNEUMOTOMY OF THE LUNG,

and exhibited a case of a large abscess of the lung of twenty-two years duration, probably the result of local gangrene following pneumonia. Patient male; age twenty-six.

Pneumotomy was performed, and the abscess drained for two years, with much improvement in general health; marked lessening of the previous horribly offensive odor, but without any healing or reduction in the size of the cavity.

They again operated and excised a portion of the abscess wall, stitching the margins of the remainder to the skin surface, thus converting it into an open cavity, with relief from the annoyance of wearing a drainage tube and of cleansing the cavity, and with practically entire cessation of odor.

Although about six months have elapsed the cavity remains unchanged, and there is evidence of secondary bronchiectasis, for which they assign two probable causes; that is, cough and cirrhosis of lung tissue. To obliterate the original cavity, and to relieve the bronchiectasis, or cure it, they propose to remove the greater portion of the lower ribs with their periosteum, in this way allowing the chest wall to collapse upon the lung.

The case demonstrates the great difficulty of definitely localizing an old abscess of the lung with tough, elastic walls which collapse when empty, by either of the two methods; namely, aspiration and palpation; the value of the x-ray; the practicability of giving ether as a general anesthetic; the absence of any embarrassment of respiration by the entrance of air through drainage tubes introduced into the cavity, although they freely communicate with the bronchus; the ease with which the cavity could be flooded with different fluids or solutions, although they entered the bronchus and caused expulsive paroxysms of coughing; the advantages gained by draining the cavity by tubes or by the open method, but without any evident obliteration of the abscess cavity.

A portion of the ninth rib in this case was resected the third time, having been twice reformed.

The presence of pleural adhesions rendered the operations in this case free from the dangers of pneumothorax, and although a localized pyothorax occurred subsequent to one of the operations, it did not delay convalescence.

DR. DEFOREST WILLARD, of Philadelphia, was chosen president of the association for the ensuing year.

The next annual meeting will be held at Albany, N. Y., in May, 1902.

AT the third annual commencement of Cornell University Medical College recently held, twenty-four candidates received the degree of M.D., a number of them being women.

Recent Literature.

Municipal Sanitation in the United States. By CHARLES V. CHAPIN, M.D., Superintendent of Health of the City of Providence. Pp. 970. Providence, R. I.: Snow & Farnham. 1901.

THIS extremely useful work is the result of a vast amount of research and of labor on the part of a practical sanitary administrator, in bringing together in one volume the different methods in actual practice in the cities of the United States. Disputed points are constantly arising in the work of health administrators, and oftentimes days and months are expended by local officials in searching the laws and regulations of states and cities for information in regard to methods of procedure, and for the precedents which may have been established by other boards of health. To all such officials this volume will prove extremely welcome. It is in no sense a work of theory, and, as the author states, "is not a treatise on the principles of sanitation, and in fact these principles are rarely referred to; but it is, rather, a compendium of sanitary practice."

If every local health official on entering upon his duties would make a thorough study of this volume, and then apply the knowledge thus attained to his daily routine, a great amount of labor, time and expense would be saved. The brief section entitled "Advancement of Knowledge" contains most valuable advice condensed in a few paragraphs.

While the work is not one of theory, the author's opinions are occasionally presented in a clear and axiomatic manner, and as the result of years of experience. For example, in treating of communicable diseases, he says: "There are few boards of health which do not have some of the commoner forms of communicable diseases constantly present; so that this problem of how to deal with communicable diseases actually existent occupies a large part of the attention of sanitary authorities, and is the important problem with which they have to deal."

Of the control of plumbing, he says: "While it would be more logical to vest this function in another department,—that of the inspection of buildings,—the earlier practice has been adhered to, and at present the control of plumbing is in most cities in the hands of the health department. This custom is doubtless due both to precedent and to the popular notion of the very intimate connection between poor plumbing and disease."

With reference to the importance of the registration of vital statistics, he says: "The registration of vital statistics is the firm basis on which the whole structure of sanitary science and practice must rest."

In treating of the sweat-shop system, he says: "The duty of the State to help the helpless, and make life more bearable for the most wretched of mankind, is reason enough for any action which will abolish or mitigate the sweat shop, without

conjuring up an exaggerated danger of sickness to the well-to-do." This accords with actual experience in Massachusetts, where, during the first four years of inspection under the provisions of the sweat-shop law, only one actual case of infectious disease was reported as existing in a family where such clothing was being made.

The topics treated are, in their order: Sanitary organization, registration of vital statistics, nuisances, specific nuisances, plumbing, water, ice and sewers, food other than dairy products, dairy products, communicable diseases (four chapters), refuse disposal and miscellaneous sanitary work. An appendix contains very many circulars and blank forms in use by local health authorities, and will prove very useful for reference.

The topics of communicable diseases and refuse disposal have been considered carefully and thoroughly, and are fully illustrated with plans and photographs of buildings and appliances in actual use, special attention being given to the subject of isolation hospitals for infectious diseases.

With reference to the general form of sanitary administration in the United States, it is stated that "local sanitary administration is provided for by law over the entire area of 36 states, including a population of 52,304,922 in 1890, or 83% of the total population at the census of that year. Twenty of these states have provided for a county form of sanitary government, and 16 states have a township form of sanitary government."

Saunders' Question Compends. Essentials of the Diseases of Children. By WILLIAM M. POWELL, M.D. Third edition. Thoroughly revised by ALFRED HAND, JR., M.D., Dispensary Physician and Pathologist to the Children's Hospital (Phila.). Pp. 259. Philadelphia and London: W. B. Saunders & Co. 1901.

This little book is open to the same criticism as all works of its class. We feel that they are almost certain to do harm to the student, as they do not give a clear picture of disease. It is impossible to do this in the form of questions and answers and in so short a space. This book is, however, far better than most of its kind.

The subject-matter is, as a rule, accurate as far as it goes. In many instances, however, the answers are more or less erroneous and very often state only half-truths. The student who uses this book entirely can hardly fail to get imperfect conceptions of many conditions and one-sided conceptions of all. He will do far better to spend his time reading one of the larger textbooks.

Hygiene and Public Health. By LOUIS PARKES, M.D., D.P.H., and HENRY KENWOOD, M.B., D.P.H. Pp. 732. Illustrated. London: H. K. Lewis; Philadelphia: P. Blakiston's Son & Co. 1901.

This sixth edition has been revised, and such changes and modifications have been made as were demanded by the rapid progress in hygiene. It has been written by practical administrators in charge of sanitary work in the populous districts of London, and is especially designed, as the authors state, "for those members of the medical profession who are studying for the various health diplomas." It constitutes, however, a valuable work of reference for the profession generally, and, with the exception of the last chapter, upon sanitary law, is well adapted to the use of the American student and medical man.

Details of laboratory work are not presented, since the authors very properly concluded that these subjects could be best presented in special treatises.

The fact that this work has reached its sixth edition speaks well in its favor.

The subjects presented are the following: Water; the collection, removal and disposal of excreta and other refuse; air and ventilation; warming and lighting; soils and building sites; climate and meteorology; exercise and clothing; food, beverages and condiments; communicable diseases and their prevention; disinfection; statistics and sanitary law.

The Theory and Practice of Military Hygiene. By EDWARD L. MUNSON, A.M., M.D., U. S. Army. Pp. 971, with 8 plates and 400 engravings. New York: Wm. Wood & Co. 1901.

Hitherto most of the different subjects relating to military hygiene have been discussed in small volumes and monographs relating to a few topics only, such as Tripler's manual for the examination of recruits, and others of similar character. But Dr. Munson has brought together in this comprehensive volume all that is essential to the military surgeon from the standpoint of preventive medicine.

The duties of the army medical officer, whether in peace or in war, demand a thorough knowledge of medicine and surgery and the treatment of disease; but he should also be trained in the principles of hygiene.

The volume is not only an admirable textbook for the medical student having army service in prospect, but is also the best work of reference on military hygiene yet published in English.

The general character of the book may be inferred from the following list of subjects which are treated: The selection of the recruit; the development of the recruit; the march in campaign; water supply; the ration; clothing and equipment; camp sites and camps; sanitary administration of camps, posts, barracks and hospitals; ventilation, heating and lighting; disposal of excreta; sewage and refuse; personal cleanliness of the soldier; military mentality and morbidity; diseases of the soldier; disinfection; habits of the soldier as affecting his efficiency; hygiene of hot and cold climates; the troop ship; disposal of the dead, and sanitary inspections. The two important topics, the ration and the diseases of the soldier, are very fully and thoroughly presented. In his treatment of the vexed subject of the army canteen, the author expresses a decided conviction in its favor. Upon this point he presents an array of facts in support

of his position, and says: "It is evident that, coincident with the general establishment of the canteen system throughout the army, there has occurred a decrease amounting to considerably more than one-half the drunkenness which formerly tended to the impairment of discipline, the demoralization of individuals, and to the occurrence of assaults, injuries and deaths. It is idle to deny that this result has not been largely due to the attraction furnished by the canteen, combined with the military discipline which prevails in that institution, and which reduces to a minimum the possibility of dangerous excesses."

The Economic Disposal of Town Refuse. By W. FRANCIS GOODRICH, A.I.M.E. Pp. 340, with 75 illustrations. London: P. S. King & Son; New York: John Wiley & Sons. 1901.

The disposal of refuse[1] has been more fully considered in England than in any other country, and has there reached its highest type of perfection. The valuable information contained in this volume, as presented by an English engineer, will be sure of a welcome by the sanitary officials of all our cities and large towns, many of which are still disposing of offensive refuse in primitive and objectionable modes.

The method most commonly in use in England is that of destruction by fire; and the object of the author is to describe the different destructors now in use, not only in England, but in all parts of the world.

The author has collected information from almost every known source, not excepting Rangoon, Shanghai and the *Boston Herald.*

A special chapter is devoted to the subject of the use of refuse for the purpose of converting it into power, or, in other words, using it as a fuel. Upon this point the author says: "In these days the refuse destructor is boldly associated with electric lighting of towns, sewage pumping, water pumping and other useful power purposes. Why? There is only one answer, and that is, because it is now generally recognized that refuse is a valuable asset, and possesses calorific value."

American experience in the disposal of garbage is treated in a separate chapter, with an introduction by Colonel Morse, of New York City, the noted expert upon this subject. His opinion appears to be clearly in favor of destruction by fire, as opposed to reduction and consequent extraction of certain products for commercial purposes.

[1] Garbage, offal and the waste of cities and towns.

LEPROSY IN FRANCE.—According to the *Medical Record* Dr. Besnier recently presented a report to the Paris Academy of Medicine regarding the increase of leprosy in France. The report stated that the disease was becoming so prevalent in various parts of the country that stringent measures were urgently needed for its suppression. In Savoy and Brittany there were several distinct endemic centres, and at the Hospital St. Louis, in Paris, fourteen lepers were at present under treatment.

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THE MASSACHUSETTS MEDICAL SOCIETY DINNER.

As indicated in our editorial notice of last week, each succeeding anniversary of the Massachusetts Medical Society shows signs of change and of improvement in the conduct of the meeting. Within the last few years the conviction on the part of the management has grown that the members come rather for conviviality than for a satiety of medical communications. The social side of the meetings has therefore become more and more prominent, and the literary part reduced in volume and scope. The custom now prevailing of having a few vital medical topics thoroughly discussed by a group of carefully selected speakers is altogether to be commended, as contrasted with the former method of indiscriminate paper reading on widely dissimilar subjects. This year the general subjects under discussion were, "Diseases of the nutrition of infants" and "The surgical aspects of diseases of the alimentary tract." A somewhat more general section, more particularly concerned with the results of laboratory investigation, completed the literary exercises, with the exception of the usual Shattuck lecture, by Dr. W. F. Whitney, on "The alleged increase of cancer in Massachusetts," a valuable statistical study, and the annual discourse, by Dr. George E. Francis, of Worcester, on "Forecast of the problems of medicine in the coming century."

A part of the proceedings, however, to which the members look forward with particular interest, is the annual dinner, which this year was peculiarly successful, both on its material and intellectual side. Wisdom was shown in the choice of after-dinner speakers, and also in the limitation of their number. President Eliot, of Harvard University, introduced by Dr. Draper as a friend of medical education, spoke feelingly

and forcibly of the growth of medical knowledge, and the self-sacrificing devotion of physicians in their investigation of the problems of disease. He said in part, that it was a source of congratulation that at these annual dinners singing was coming to be substituted for speeches; that a chorus of purely medical men typified the perfect harmony which existed throughout the society. He further spoke of the new education in the Harvard Medical School, which had become a laboratory of experimentation, and insisted upon the importance now, as always, of experimental study. He alluded to the far-reaching beneficence of the recent work on the etiology of yellow fever, as typifying the heroic side of the medical profession, and made a personal allusion to the late Jesse William Lazear, who sacrificed his life in the attempt to demonstrate the means of contagion of the disease. "This devotion to duty is due to no courage of the crowd, no gregarious enthusiasm like that of the battlefield; there are no witnesses, no shouts to encourage; it is the deliberate taking of a great risk. Is it not infinitely superior to the heroism of fighting? Yet it has all come out of the horrors of war; out of this has come the beneficent heroism of peace. There are none braver, none nobler, none more self-sacrificing."

President Capen of Tufts College spoke from the standpoint of a minister as well as of an educator. He acknowledged his embarrassment in facing an audience of medical men, and described his feelings on being called upon to speak as not unlike that of the deacon who when asked to lead a meeting in prayer, hesitated, and finally when asked whether he could pray, answered, "Yes, I can, but I hate to." He went on to speak of the change which had come about in medical education during the past few years, and of the subordinate place formerly given to the physical sciences, and especially to biology, which had now, in his opinion, become one of the humanities. He bewailed the attempt recently made in this State to tie the hands of medical investigators by restrictive legislation, and commented on the services physicians were rendering by appearing at legislative hearings against the legalization of quackery and humbug. He alluded in conclusion to the growth of the medical school of Tufts College, in which he felt a deep personal interest.

Mr. S. J. Elder, for the law, spoke both jocosely and seriously. Usually, he said, we have one of your number in a box, closed on three sides, but now you have one of us, enclosed on four sides. Of expert testimony he spoke as follows: I dislike many classes of experts; they have brought down upon themselves the criticism of the courts and the distrust of the community. At times such experts are practically paid counsel, but that is not true of your profession. After an increasing number of years at the bar, it is a satisfaction to say that the opinions of doctors are discriminating, fair and nonpartisan.

These various statements are good to hear from men outside the profession of medicine. No doubt they are somewhat exaggerated, to fit the occasion, but it is not likely that the average doctor will have his head turned by listening to such laudation once a year. It is certainly a gratification, amidst the storm of abuse in which the medical expert usually lives, to hear from the lips of so distinguished a member of the bar as Mr. Elder, that the expert is, after all, not so bad as some of the speaker's less distinguished colleagues would paint him.

Dr. Cheever closed the formal speaking by an appeal for the liberal support of the Boston Medical Library, as follows:

"As president of the Boston Medical Library I feel that I have a strong claim to your attention. All of my hearers may not realize the many years of effort which have at last given birth to our new library building. It is worthy of any society, and is a beautiful, chaste and appropriate edifice. Surely this marks a long step in advance for the profession in Massachusetts. A large library, containing files and fresh numbers of over 500 medical periodicals always at hand, besides 29,000 volumes of permanent works, will tempt the inquirer and reward the student. We have happily commemorated Dr. Oliver Wendell Holmes, Dr. John Ware, Dr. Fifield, in the halls named for them.

"The doctors of Boston, both of themselves and by soliciting others, have paid in $73,690. We have a mortgage debt of $50,000. Our great need now is for endowments, small or large, to buy new books. Any one subject in medicine could be pursued farther for an endowment of only $1,000, whose annual interest would purchase enough new books on that one subject each year. Let me urge you, gentlemen, to show your interest by becoming associate members, for $5.00 a year. Go and become familiar with the beauty of Holmes Hall, its many portraits, medallions and mementoes; visit the library; use the library; support the library."

PHYSICIANS AND THE LAW.

The legal relation of physicians to their patients is always a matter of some delicacy, and one which, unfortunately, not infrequently demands a final decision from the courts. It is altogether proper that a person who employs a physician should have a reasonable assurance of his faith-

fulness and skill, and it is incumbent on the physician to justify this assurance. The limit of a physician's duty to his patient is, however, an exceedingly difficult matter to determine. There is a strong feeling on the part of the laity that a physician's services are absolutely at the beck and call of the public; that if called to a case he has no choice but to go, and if in attendance on a patient is equally bound to continue his services until convalescence is established or death results. It is clearly a matter of very great importance that both the physician and the patient should be protected, and the interests of both safe-guarded by the law, which must always be the final arbiter in matters of dispute.

A case of considerable interest in this connection is reported as having recently occurred in California, establishing a precedent of no little importance to the practicing physician. The facts are said to have been essentially these: A physician, about whose capacity there seems to have been no question, was called to attend a young married woman. After duly considering the conditions he concluded that an operation of some sort was demanded; but when the time came for its performance the patient rather hysterically refused to have it done, whereupon the physician, who had previously told the patient that he would relinquish the case if she refused to act according to his judgment, left the house. An hour passed before another physician arrived, who thought it unnecessary to operate.

The first physician was sued by the aggrieved husband and wife, and a verdict was returned against him to the amount of $2,000. The case was tried before the Supreme Court of California, which stated that the defendant had shown himself neither unskillful nor negligent up to the time of leaving the case, nor did it hold that he had endangered the life or health of either mother or child. The Court, however, went on to define the duty of the physician under such circumstances, as follows: "It is undoubtedly the law that a physician may elect whether or not he will give his services to a case; but having accepted his employment and entered upon the discharge of his duties, he is bound to devote to the patient his best skill and attention, and to abandon the case only under one of two conditions: First, where the contract is terminated by the employer, which termination may be made immediately. Second, where it is terminated by the physician, which can only be done after due notice and an ample opportunity afforded to secure the presence of other medical attendance. . . . He can never be justified in abandoning the case as did this defendant, and the circumstances show a negligence in its character well-nigh to brutality."

So far as the statement at hand goes, there is no evidence to show that the physician left the case from any other motive than that his judgment was no longer respected by his patient; it furthermore would appear that he had given due notice of his intentions, and that his final action could therefore have been no surprise. In spite of these facts, the decision of the Court was strongly against the defendant. We have no adequate knowledge of this particular case, but we confess to a feeling of uneasiness when we contemplate the hold which such a decision gives to possible designing persons upon self-respecting doctors. A physician's position at once becomes ridiculous when his advice is refused; and yet, according to this decision, it appears that he must still continue his services, even after he has given what to the lay mind would seem to be a sufficient warning of his attitude. It is remarkable that physicians escape as often as they do from the toils of the law, under any circumstances, and it is certainly well that they should be prepared to meet all contingencies.

MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION.

THIS week the American Neurological Association is meeting in Boston, a choice which we may be pardoned for regarding as a wise one. Boston is at all times attractive, but particularly so in the early summer; and, however bent on knowledge the members of the association may be, it is safe to assume that their eyes are not wholly blinded to natural beauties. The gentlemen in charge of the recreation side of the meeting have chosen to have one of the sessions, with a luncheon, at the McLean Hospital in Waverly, and another at the Brookline Country Club. The meeting is being well attended, and the papers vigorously discussed. With a continuance of the present fair weather we trust the association may regard this meeting as a success, and Boston as one of its regular places of meeting,—a hope which we could express less warmly before the new medical library was prepared for the reception of guests. But with the availability of this library building we commend the example of the Pathological and Neurological Associations to the other national medical societies.

MEDICAL NOTES.

ADDRESS IN MEDICINE AT THE YALE MEDICAL SCHOOL.— The annual address in medicine at the Yale Medical School will be given on Tuesday, June 25th, by Prof. Edmund B. Wilson, Ph.D., of

Columbia University, on "The Higher Claims of Minute Research in Biology and Medicine."

Medical Excursion to London and Paris.— A medical excursion to London and Paris in connection with the Tuberculosis Congress in London, July 23 to 26, and the meeting of the British Medical Association at Cheltenham July 29 to August 2, 1901, occupying twenty-nine days, will leave New York July 10th, returning August 1st by way of Boston. The expense of the trip will be $238. There will be an alternative return for those who prefer waiting the adjournment of the British Medical Association, making a thirty-one day trip at a cost of $260. This trip has been carefully designed in the interests of medical men who desire to attend the two great medical meetings this summer in Great Britain. Before reaching their scientific work they enjoy the opportunity of spending several days in Paris for sight-seeing. In London they are quartered in one of the newest and largest hotels within easy reach of Westminster Abbey and the Houses of Parliament. In Cheltenham they find themselves in one of the most fashionable of English watering places.

Scholarship in Physiology at the University of Chicago.— By the will of the late Dr. Marie J. Mergler it is reported that the University of Chicago is to have a $3,000 scholarship in physiology.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 19, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 70, scarlatina 12, measles 147, typhoid fever 7.

Award of John W. Pray Prize.— The John W. Pray Prize offered by the trustees of the New Hampshire State Hospital for original work on any branch of medicine has been awarded to Dr. Albert E. Brownrigg for an essay on "The Clinical Significance of the Cheyne-Stokes Symptom-Complex." Dr. Brownrigg is a graduate of the Harvard Medical School of the class of '98, and is at present assistant physician at the New Hampshire State Hospital.

NEW YORK.

Gangrene of Intestine from Thrombosis.— At the June meeting of the Medical Association of the City of Greater New York, Dr. A. A. Berg presented the specimens from a rare case: gangrene of the intestine due to extensive thrombosis of the veins of the mesentery. The patient, a woman, was admitted to Mount Sinai Hospital three weeks after an attack of abdominal pain, coming on after lifting a heavy weight, and laparotomy was performed for apparent intestinal stenosis. There had been gradually increasing constipation, so that during the last week it had been impossible to secure any movement of the bowels whatever, and for three days before admission she had had stercoraceous vomiting. When the abdomen was opened there was found in the right iliac fossa a coil of enormously distended intestine about a foot in length, which was of a very dark color, and had a number of entirely black spots on its surface. The gangrenous portion of the intestine was resected, and an anastomosis made of the segments of healthy gut, but the patient survived the operation only a few hours. The thrombosis of the mesenteric veins, which had been detected during the operation, was fully demonstrated at the autopsy. Dr. Berg also presented the ovary of a patient operated on for pyosalpinx involving the appendix vermiformis. When admitted to the hospital she appeared to be suffering from an ordinary appendicitis with abscess formation; but when the abdomen was opened it was found that the case was really one of pyosalpinx, and that the appendix was involved only by continuity. The woman made a good recovery.

Commencement at Columbia University.— The one hundred and forty-seventh annual commencement of Columbia University was held on June 12th. There were 147 graduates in medicine, and the fellowships of the Alumni Association of the College of Physicians and Surgeons, $500 each, were awarded as follows: Fellow in anatomy, Dr. Henry E. Hale; fellows in pathology, Drs. Augustus B. Wadsworth and Charles Norris. The Alonzo Clark scholarship, $700, was awarded to Dr. Augustus J. Lartigan. Among the honorary degrees conferred was that of Master of Science, on Dr. George M. Lefferts, clinical professor of laryngology and rhinology in the College of Physicians and Surgeons. He was presented by Prof. T. Mitchell Prudden, who referred in fitting terms to Dr. Lefferts' twenty-five years' faithful and successful service in the college.

Horse Racing and Charity.— The $24,000 stakes won by the horse of James R. Keene, of New York, in the "Oaks" at Epsom, has been donated by the owner to charitable institutions in this country and in England. Among the gifts to New York charities were $2,000 to St. John's Guild and $1,000 each to the Herald Ice Fund and the Tribune Fresh-air Fund.

Bequest for a Laboratory.—It is announced that Prof. Henry Morton, president of the Stevens Institute, Hoboken, has given an additional $50,000 for the completion of the new chemical laboratory being erected at the college. His total gifts to the institute now amount to $140,000.

MORTALITY STATISTICS.—The reports of the Health Department show that during the month of May the mortality in the city represented an annual death rate of 18.26 against 20.67 in April and 19.88 in May, 1900. The weekly average of deaths from diphtheria and croup declined from 49.5 in April, to 44; from typhoid fever, 11.25 to 7.5; from pneumonia, 166.75 to 130.5; from phthisis, 177.5 to 150.25; from bronchitis, 42.25 to 31.75; from influenza, 17.5 to 5; from cancer, 51.25 to 41; and from diseases of the genito-urinary system, 124 to 102. The weekly average of deaths from smallpox increased from 9.25 to 13.75, and from scarlet fever, 43.75 to 44.5.

OPENING OF SEASIDE HOSPITAL OF ST. JOHN'S GUILD.—The Seaside Hospital of St. John's Guild at New Dorp, Staten Island, was opened for the season on June 15th, and on this occasion was dedicated the Lewis Memorial Cottage, which has been erected by Mrs. Frederick Elliott in memory of her son, Frederick Chandler Lewis. The new building, which cost $10,000, is a wooden structure 103 feet long and 35 feet wide, and contains two wards. It is designed for the care of the most serious cases of infantile disease, and is a complete hospital in itself.

ANNIVERSARY OF HOME FOR INCURABLES.—The thirty-fifth anniversary of the Home for Incurables at Fordham, borough of the Bronx, was celebrated on June 11th. It was announced that a gift of $30,000 had been received for the institution; and among the speakers on the occasion were Bishop Potter and Senator Chauncey M. Depew. The report of Dr. Israel C. Jones, the medical superintendent, showed that the death rate among the inmates was 19.5%. Of 30 patients discharged during the year, 4 were entirely cured.

BEQUEST TO A HOSPITAL.—Among the charitable bequests made by the widow of Martin B. Brown, who died recently, leaving an estate of $500,000, was one of $2,500 to St. Vincent's Hospital.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.—The certificate of incorporation of the Rockefeller Institute for Medical Research, of New York City, was filed with the Secretary of State at Albany on June 13th.

Miscellany.

THE MASSACHUSETTS MEDICAL SOCIETY. COUNCILORS' MEETING.

THE annual meeting was held in the Medical Library, Boston, on Tuesday, June 11, 1901.

The meeting was called to order at 5 P.M. by the president, Dr. Frank W. Draper. One hundred and twenty councilors were present.

The secretary read the names of 135 fellows admitted since the last annual meeting, and of 29 whose deaths had been recorded.

It was voted, on recommendation of the Committee on Membership and Finance, that $4,000 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that Dr. Frank Billings, of Chicago, has been appointed to deliver the Shattuck lecture at the annual meeting of the society in 1902.

Dr. H. R. Hitchcock called attention to the fact that the Massachusetts Medical Society many years ago had been instrumental in establishing a system of registration of births and deaths by the State. Of late years this has been much less satisfactory than formerly. He moved, and it was voted, that the following be referred to the Committee on State and National Legislation:

Resolved, That a committee of three experts shall be appointed by the Governor, whose duty it shall be to consider the subject of "registration of births, marriages, deaths and divorces, from the standpoint of efficiency, economy and practical usefulness," and shall report upon the same to the legislature not later than May 1, 1902, their report to include such recommendations and changes in the present plan as they may deem best.

The Committee on Nominations reported, and the following were chosen officers of the society for the ensuing year: President, Dr. Frank W. Draper, of Boston; Vice President, Dr. Augustus C. Walker, of Greenfield; Treasurer, Dr. Edward M. Buckingham, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Brookline; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Brookline. Dr. George S. Eddy, of Fall River, was chosen orator of the annual meeting of the society in 1902.

Voted, That the next annual meeting of the society be held in Boston on the second Wednesday in June, 1902.

The following standing committees were appointed:

Of Arrangements.—Drs. S. Crowell, W. H. Prescott, F. G. Balch, J. C. Hubbard, Farrar Cobb, A. P. Perry.

On Publications.—Drs. O. F. Wadsworth, Geo. B. Shattuck, H. L. Burrell.

On Membership and Finance.—Drs. E. G. Cutler, L. R. Stone, F. W. Goss, W. Ela, C. M. Green.

To Procure Scientific Papers.—Drs. A. K. Stone, C. F. Withington, W. H. Pomeroy, J. B. Blake, G. L. Richards.

On Ethics and Discipline.—Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas.—Drs. H. E. Marion, E. N. Whittier, O. F. Rogers.

On State and National Legislation.—Drs. F. W. Draper, H. P. Bowditch, S. D. Presbrey, S. W. Abbott, B. H. Hartwell.

Obituary.

WILLIAM LEONARD WORCESTER, M.D.

WE regret to record the death of Dr. William L. Worcester, for six years physician and pathologist at the Danvers Insane Hospital. He died Sunday, June 5th, at the age of fifty-six, after a brief illness, from septicemia.

He was born in 1845 in Chelsea, Vt., and obtained his primary education in the public schools of Thetford of that State. His father, Ezra C. Worcester, was a physician before him, and the son decided to undertake the same profession. After graduating from Dartmouth College in '69, he went to Washington, D.C., and was for a time clerk of the senate committee on pensions. He obtained his degree of doctor of medicine from a medical school in Washington, and was then appointed medical examiner in the pension department. After further study in Europe, and after engaging in private practice for a few years in Burlington, Vt., he decided to adopt mental diseases and pathology as his special field of work. He was for eleven years assistant physician at Kalamazoo, Mich., and for six years assistant superintendent at the insane hospital at Little Rock, Ark. He came to the Danvers Hospital in 1895.

As an alienist and pathologist Dr. Worcester had made for himself an enviable position among his colleagues and those best fitted to judge of his scholarly qualities. He was an unassuming man, quiet in manner, and not inclined to force himself upon the attention of others. In spite of this fact he accomplished in his laboratory researches a most creditable amount of work, always carefully thought out and considered before being submitted to the printer. Although he had much knowledge of general pathology, he had latterly devoted himself especially to the difficult field of the pathology of the nervous system, and had published many papers of decided merit and originality. It is not too much to say that he was one of the pioneers in the application of modern microscopic technique to the nervous system in America, a department of research in which it was natural that good work should have long gone unrecognized.

His death is a loss to the profession at large, and especially to the Danvers Hospital, with which he had become closely identified. The hospital, no doubt, owes him more than can at present be realized, for he represented the best tendency in psychiatrical research. In addition to his knowledge of mental disease he was an excellent neurologist, and a man of high scholarly attainment. He was a member of the American Neurological Association, and a faithful attendant at its meetings. Within a few months he had read a paper before the newly formed American Association of Pathologists and Bacteriologists.

Dr. Worcester leaves an aged mother, three brothers and three sisters, who were present at his bedside when he died, with the exception of one brother, Dean C. Worcester, of the Philippine commission, who is now at Manila.

Correspondence.

SMALLPOX AT BERLIN.

NEW HAMPSHIRE STATE BOARD OF HEALTH.

CONCORD, N. H., June 12, 1901.

MR. EDITOR: In response to numerous inquiries, and to inform the public generally on the smallpox situation at Berlin, we have to say that there are at this date, June 12th, approximately 36 cases of the disease in northern New Hampshire; 2 cases in a lumber camp on Gale River, 2 cases in one family at a farmhouse in Berlin, and 32 cases in the isolation hospital in that city. All of these cases are under strict quarantine, and in no manner whatever endanger the public.

An order is for the present in force in the city of Berlin making it a penal offense not to report to the Board of Health every form of eruptive disease. A competent and experienced inspector of the State Board of Health, with headquarters at Berlin, has supervision over the situation, and is co-operating with the local boards of health in carrying out such restrictive measures as may be necessary. No effort is being spared by the State and local authorities to stamp out the disease at the earliest possible moment.

The malady is, of course, confined to the unvaccinated classes. Extensive vaccination has, however, been brought about by the co-operation of health officers, ministers, priests, manufacturers and public sentiment. The situation, therefore, should not cause public alarm, and there should be no interference with business or travel.

There is no occasion whatever for any quarantine to be established other than that now in force, covering the cases themselves, and any quarantine that may have been established by any town against free communication, travel, or business, is hereby dissolved by authority conferred upon this board by the Public Statutes.

We urge upon every town and city the great importance of general public vaccination, and reiterate our recommendation that lumbermen, manufacturers and others require that successful vaccination shall be one of the requisites for employment.

We repeat that the situation should not cause alarm, but that every community and every individual should avail themselves of the only known preventive of smallpox, to wit: vaccination.

We shall keep the public fully informed regarding the situation, and no credence should be given to the baseless rumors that are not infrequently circulated.

IRVING A. WATSON, M.D., *Secretary.*

INHERITED PREDISPOSITION TO APPENDICITIS.

61 Auburndale Place,
CINCINNATI, June, 1901.

MR. EDITOR: I am trying to establish the fact, which I believe from my own personal observation to be true (see *Lancet Clinic*, June 8th), of an inherited tendency or predisposition to appendicitis. If the readers of your journal will kindly look into history (family) of their cases and report to me, I will be under very many obligations.

Truly yours,
W. H. DEWITT, M.D.

METEOROLOGICAL RECORD.

For the week ending June 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in inches.
S. ...2	29.90	54	60	49	87	83	85	N W	S	2	7	O.	O.	T.
M. ..3	29.80	64	74	54	86	54	70	S W	W	10	12	F.	O.	.0
T. ...4	29.85	66	79	53	60	55	58	W	W	12	10	C.	F.	.0
W. ..5	29.99	72	85	59	53	46	50	W	S W	7	14	C.	O.	.0
T. ...6	29.96	76	87	65	60	54	57	S W	S W	10	16	C.	C.	.0
F. ..7	29.82	70	77	64	83	92	88	S	S	14	17	O.	R.	.08
S. ...8	29.78	62	68	56	63	55	59	W	W	13	16	C.	C.	.29
☞	29.87		76	57			67							.37

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 8, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York . .	3,437,202	1,209	368	24.73	11.25	—	4.13	3.96
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	410	115	25.12	10.00	1.11	—	2.68
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	168	45	22.65	8.92	—	3.57	2.38
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	—	—	—	—	—	—	—
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	63	12	31.74	3.17	—	3.17	4.76
Boston . . .	560,892	202	56	28.71	11.38	2.47	2.47	3.47
Worcester. .	118,421	23	9	8.69	13.04	—	—	—
Fall River. .	104,863	25	9	20.00	8.00	—	8.00	—
Lowell . . .	94,969	31	11	16.13	29.03	—	—	6.45
Cambridge .	91,886	26	5	15.38	11.53	—	—	—
Lynn. . . .	68,513	23	7	13.04	—	—	—	—
Lawrence . .	62,559	15	8	26.64	6.66	—	—	6.66
New Bedford.	62,442	21	8	28.57	4.76	—	—	—
Springfield .	62,059	10	1	20.00	10.00	—	—	—
Somerville .	61,643	12	4	16.67	16.67	—	—	—
Holyoke . .	45,712	10	6	30.00	10.00	—	—	—
Brockton . .	40,063	8	3	12.50	—	—	—	—
Haverhill . .	37,175	7	—	28.60	14.30	—	—	—
Salem . . .	35,956	10	—	40.00	—	—	—	—
Chelsea. . .	34,072	11	4	9.09	—	9.09	—	—
Malden . . .	33,664	9	1	33.33	33.33	—	11.11	—
Newton. . .	33,587	6	—	—	—	—	—	—
Fitchburg . .	31,531	12	2	8.33	8.33	—	—	—
Taunton . .	31,036	12	4	8.33	8.33	—	—	—
Gloucester .	26,121	3	—	—	—	—	—	—
Everett. . .	24,336	4	—	—	25.00	—	—	—
North Adams	24,200	5	1	—	—	—	—	—
Quincy . . .	23,899	9	2	22.22	22.22	—	—	—
Waltham . .	23,481	4	—	25.00	—	—	—	—
Pittsfield . .	21,766	3	—	66.67	—	—	—	33.33
Brookline . .	19,935	4	—	50.00	—	50.00	—	—
Chicopee . .	19,167	8	3	37.50	25.00	—	—	—
Medford . .	18,244	5	2	20.00	20.00	—	—	—
Newburyport	14,478	3	—	33.33	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,410, under five years of age 696; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 592, acute lung diseases 256, consumption 329, scarlet fever 13, influenza 1, erysipelas 15, typhoid fever 23, whooping cough 18, measles 19, cerebro-spinal meningitis 7, smallpox 19.

From whooping cough, New York 5, Philadelphia 7, Baltimore 1, Providence 1, Boston 1, Holyoke 2, Quincy 1. From cerebro-spinal meningitis, Philadelphia 1, Lynn 2, Fall River, New Bedford, Somerville and Brockton 1 each. From scarlet fever, Philadelphia 5, Boston 5, Brookline 2, Chelsea 1. From typhoid fever, New York 5, Philadelphia 12, Baltimore 1, Providence 1, Boston 2, Salem and Newburyport 1 each. From erysipelas, New York 6, Philadelphia 3, Baltimore 3, Lowell, Medford and Southbridge 1 each. From smallpox, New York 16, Philadelphia, Providence and New Bedford 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending May 25th the death rate was 16.7. Deaths reported 3,674: acute diseases of the respiratory organs (London) 191, whooping cough 120, diphtheria 55, measles 96, fever 28, scarlet fever 38.

The death rate ranged from 11.2 in Croyden to 22.6 in Wolverhampton; Birkenhead 17.4, Birmingham 21.8, Blackburn 14.3, Bolton 18.2, Bradford 19.5, Brighton 12.6, Bristol 13.6, Burnley 20.4, Cardiff 15.8, Derby 17.2, Gateshead 17.5, Halifax 18.8, Huddersfield 13.7, Hull 15.8, Leeds 15.3, Leicester 15.0, Liverpool 19.3, London 15.7, Manchester 18.5, Newcastle-on-Tyne 18.1, Norwich 12.1, Nottingham 19.5, Oldham 16.7, Plymouth 16.4, Portsmouth 16.2, Preston 17.1, Salford 22.1, Sheffield 16.4, Sunderland 15.9, Swansea 21.5, West Ham 14.7.

CHANGES IN THE MEDICAL CORPS OF THE NAVY WEEK ENDING JUNE 8, 1901.

Doctors J. W. Backus, F. A. Asserson, J. F. Murphy, W. Seaman and R. R. Richardson, appointed assistant surgeons in the Navy.

F. J. B. Cordeiro, surgeon. Detached from the "Buffalo," June 10th, and ordered home to wait orders.

L. W. Curtis, surgeon. Ordered to the "Buffalo," June 10th.

E. S. Bogert, Jr., passed assistant surgeon. Commissioned surgeon from December 15, 1900.

R. W. Plummer, assistant surgeon. Detached from the "Nashville" and ordered to the "Princeton."

W. Seaman, assistant surgeon. Ordered to the "Independence," June 17.

H. H. Haas, assistant surgeon. Detached from Naval Hospital, New York, and ordered to the Norfolk Navy Yard, June 10th.

R. R. Richardson, assistant surgeon. Ordered to Naval Hospital, New York, June 10th.

J. M. Brister, assistant surgeon. Detached from the "Independence" June 17, and ordered to the Asiatic Station via Transport "Hancock."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 30, 1901.

CARTER, H. R., surgeon. To inspect the local quarantine station at Baltimore, Md. May 25, 1901.

WOODWARD, R. M., surgeon. Granted two weeks' extension of leave of absence from May 28. May 25, 1901.

VAUGHAN, G. T., surgeon. Detailed as delegate to represent the service at the meetings of the Association of Military Surgeons of the United States May 30; and American Medical Association June 4, at St. Paul, Minn. May 27, 1901.

COBB, J. C., passed assistant surgeon. Relieved from duty at Fort Stanton, N. M., and directed to proceed to Portland, Ore. May 29, 1901.

WERTENBAKER, C. P., passed assistant surgeon. Detailed to represent the service at meeting of the Association of Military Surgeons of the United States May 30; and American Medical Association, June 4, at St. Paul, Minn. May 27, 1901.

GARDNER, C. P., passed assistant surgeon. Detailed to represent service at meeting at the Washington State Medical Society at Seattle, Wash., June 18 to 20, 1901, inclusive. May 27, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days. May 28, 1901.

HOBDY, W. C., assistant surgeon. To proceed to Thomson, Ga., for special temporary duty. May 27, 1901.

HARGIS, J. W., acting assistant surgeon. Granted leave of absence for four days from May 28. May 27, 1901.

OLSEN, E. T., hospital steward. Granted leave of absence for fifteen days from June 13. May 22, 1901.

SPANGLER, L. C., hospital steward. To proceed to Delaware Breakwater, Del., and report to medical officer in command for duty and assignment to quarters. May 28, 1901.

APPOINTMENT.

Lewis C. Spangler, of Ohio, appointed junior hospital steward in the U. S. Marine Hospital service. May 27, 1901.

RECENT DEATH.

DR. DANIEL W. MARSTON, of New York, recently died at Schenectady, N. Y., having been taken with pneumonia while on his way to the meeting of the American Medical Association at St. Paul. He was graduated from Bellevue Hospital Medical College in 1898.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Associated Physicians of Long Island, January, 1900, to June, 1901. Vol. II.

Mosquitoes. How They Live; How They Carry Disease; How They are Classified; How They may be Destroyed. By L. O. Howard, Ph.D. Illustrated. New York: McClure, Phillips & Co. 1901.

Etidorhpa, or the End of Earth; the Strange History of a Mysterious Being and the Account of a Remarkable Journey, by John Uri Lloyd, author of "Stringtown on the Pike." Illustrated. New York: Dodd, Mead & Co. 1901.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. II. June, 1901. Illustrated. Philadelphia and New York: Lea Brothers & Co.

Original Articles.

A STUDY OF THE FOOD CONSUMED AND DIGESTED BY FOUR MEMBERS OF THE HARVARD UNIVERSITY BOAT CREW IN JUNE, 1900.

BY W. O. ATWATER AND F. G. BENEDICT, WESLEYAN UNIVERSITY.

(Concluded from No. 25, p. 606.)

The figures of Table 5 imply that the quantities of food eaten by the Yale and Harvard crews varied within comparatively narrow limits. The quantities were regulated mainly by the appetites and instincts of the eaters, as is the case generally with people who have all they want to eat. Well-to-do people of sedentary habits are often inclined to eat more than they need or than is best for them. It seems probable that people with severe muscular work and plain diet would be less prone to dietary excess. It is evident that these college crews had instinctively arrived at a standard which was nearly uniform for all. Whether that standard, with its 154 grams of protein and fuel value of 3,925 calories in the food actually eaten, is the best for men of their class, and the work they have to do is a question that cannot be decided without a great deal of careful observation and painstaking experiment.

THE DIGESTION EXPERIMENTS.

The object of the digeston experiments is to find what proportions of the food as a whole, and of its several constituents, are digested and made available to the body for building and repair of its materials and for the yielding of energy. A large part of what is definitely known of this particular subject comes from late German inquiry, the methods and results of which have not yet received great attention in American and English medical literature. In the co-operative inquiry referred to above as carried on in different parts of the United States, considerable experimenting has been done in this direction during the past few years.

Definitions of terms.—The following statement, condensed from a late article on the subject,[17] will explain the use of the terms digestibility, availability, energy and fuel value in the present article.

The digestion of food is done at the expense of a certain amount of material which other food has supplied, and which has been fitted by the body for the particular purpose. This material is essentially that which is poured into the alimentary canal in the digestive juices. That which is not reabsorbed remains in the feces in the so-called metabolic products. These latter include, also, the fragments of intestinal epithelium and minute quantities of other substances.

In addition a small part of the food escapes digestion. The feces are, accordingly, made up of (1) metabolic products which are mainly the residues of digestive juices, and (2) the undigested residues of the food. This brings out the distinction between the terms digestibility and availability as they are here used.

Digestibility of food.—This term is here used to designate the quantity or proportion of material actually digested. It is measured by the difference between the total food and the undigested residue. The statement applies likewise to the several nutrients — protein, fats, carbohydrates and mineral matter. To determine what amount of each is digested, the total amount in the food and the corresponding amount of undigested residues in the feces should be determined. Subtracting the undigested residue from the total amount would give the amount digested. The methods for distinguishing between the metabolic products and the undigested residue of the food, however, have not been made sufficiently accurate to enable us to determine exactly the amounts of undigested residue in the feces. Hence satisfactory determinations of digestibility, in the sense in which the word is here used, are yet hardly feasible.

Availability of food.—The term availability is here used to designate the quantity or proportion of the food and of each of the several nutrients which can be used for the building and repair of tissue and the yielding of energy. The metabolic products are not used either for building material or fuel, and hence are not available in the sense in which the word is here employed. They represent part of the cost of digesting the food. The amounts of available nutrients are found by subtracting the sum of the metabolic products and the undigested residue; that is, the ingredients of the feces, from the corresponding ingredients of the food. The term digestible has often been used in the sense in which available is here employed, but the distinction here made is evidently an important one. How the available nutrients of the food are actually utilized in any given case; how much benefit the body gains from a given amount of nutrients in any given diet, is another matter.

Energy.—The total energy of a given quantity of food or body material is taken as equivalent to its heat of combustion in oxygen as measured by the bomb calorimeter, the unit of measurement being the large calorie. This assumes that when material is oxidized in the body the amount of latent energy which becomes kinetic and available to the body is the same as if the material were oxidized to the same or equivalent products outside the body; for example, in the bomb calorimeter. The correctness of this assumption is based upon the belief that the law of the conservation of energy holds in the living organism, and is verified by the results of late experiments with men in the respiration calorimeter at Wesleyan University.

Available energy.—The view thus expressed makes the total available energy of the food the total energy (heat of combustion) less that of the corresponding unoxidized residues of the feces and urine. It is also the total energy of the available nutrients less that of the corresponding unoxidized material of the urine.

[17] Discussion of the terms Digestibility, Availability and Fuel Value, by W. O. Atwater. Report of Storrs (Conn.) Experiment Station, 1899, p. 69.

Fuel value.— This term is here used synonymously with available energy; that is, it signifies the energy of the material of the food which is oxidized (that is, capable of oxidation) in the body. For the protein it is the total energy less that of the corresponding unoxidized residues of the feces and urine. For the fats and carbohydrates it is the total energy less the energy of the corresponding unoxidized material of the feces.

The term fuel value is also applied, in the same signification, to the body materials oxidized.

TABLE 6.— FECES: FOUR ATHLETES, 7 DAYS. DIGESTION EXPERIMENT NO. 191.[1]

Laboratory No.	Subject.	Day of Study. 1	2	3	4	5	6	7	Total. 7 Days.
		Gms.	Gms.	Gms.	Gms.	Gms.	Gms.	Gms.	Gms.
3,219	A.....	74.0	79.0	219.0	148.0	47.0	96.0	69.0	732.0
3,220	B.....	130.5	193.5	167.0	108.0	347.0	136.0	151.0	1,233.0
3,221	C.....	152.6	137.0	158.0	174.0	275.0	76.0	194.0	1,166.6
3,222	D....	238.0	310.0	268.0	257.0	224.0	203.0	237.0	1,737.0

[1] That is the 191st experiment of the series referred to on page 601.

TABLE 7.— AVAILABILITY (DIGESTIBILITY) OF NUTRIENTS AND ENERGY OF FOOD EATEN BY FOUR ATHLETES:

DIGESTION EXPERIMENT NO. 191.

	Total.[1] Grams.	Organic matter. Grams.	Nitrogen. Grams.	Protein. Grams.	Fat. Grams.	Carbohydrates. Grams.	Energy. Calories.
Food.							
Average eaten per man per day.	2,898	786	25.3	154	159	473	4,279
Feces per Man per Day.							
Subject A	105	21	1.3	8	4	8	125
Subject B	176	27	2.0	12	7	8	168
Subject C.....	167	27	2.0	13	6	8	173
Subject D	248	35	2.3	14	11	10	228
Total 4 men per day...	696	110	7.6	47	28	34	694
Average per man per day	174	27	1.9	12	7	9	174
Energy lost in urine per man per day ..	.....	.....	.....	.....	.....	.....	178
Average of amounts available per man per day.....	.....	759	23.4	142	152	464	3,927
Coefficients of availability.....	.....	Pr ct. 96.6	Pr ct. 92.5	Pr ct. 92.2	Pr ct. 95.6	Pr ct. 98.1	Pr ct. 91.8

[1] As these weights include water, they are of minor importance.

Coefficients of availability.— The difference between the income of each ingredient in the food and the outgo in the feces shows the amount available. The coefficients of availability of nutrients are found by dividing the amounts available by the total amounts in the food. The same principle applies in estimating the available energy, which is the total energy of the food less that of the feces and urine, and is here taken as the measure of the fuel value. The coefficients of availability of the energy of the food and of the several kinds of nutrients are found by dividing the available by the total energy.

Results of the digestion experiment.— The weights of feces are given in Table 6 and the composition in Table 2. The weights and composition of the urine are stated in Table 9. Table 7 summarizes the results of the digestion experiment. The figures for food eaten per man per day are taken from Table 4; those for feces are calculated from the amounts and the composition.

It will be remembered that the amounts of food eaten by the four men collectively were weighed each day, no attempt being made to learn just how much each individual man ate. The amounts of feces excreted by each individual during the whole seven days were weighed, so that the amounts for each were determined separately.

The figures for feces per man per day are found by taking the total intestinal excretion of each man for seven days, as computed from Tables 2 and 6 and dividing by 7; this gives the averages per day for each of the four men in Table 7. The averages of these four individual averages are taken as the general averages per man per day in Table 7.

The figures for the heats of combustion of food and feces are calculated from the results of actual determinations with the bomb calorimeter. The energy lost in the urine in like manner represents the heats of combustion of the unoxidized materials of the urine.

The amounts of available nutrients are obtained by subtracting the quantities in the feces from those in the food. The corresponding figures for energy are found by subtracting the sum of the heats of combustion of the unoxidized materials of feces and urine from the total heats of combustion of the food. The coefficients of availability for both nutrients and energy are obtained by dividing the amounts available by the total amounts.

According to the figures of the table, 92.5% of the nitrogen and 92.2% of the protein of the food are available to the body. This slight difference is explained by the fact that the factors used for computing the protein from the food differ somewhat in the different food materials, as explained in Table 8 beyond. The discrepancy is of no practical consequence.

Availabilities of nutrients and energy of food.— The main result of the experiment is found in the coefficients of availability. According to the figures of Table 6 these four athletes in the last days of active training for the boat race, on a simple and ample diet digested their food so as to make the following proportions of the several constituents available to their bodies for the building and repair of tissue and the yielding of energy:

Protein	92.2%
Fats	95.6%
Carbohydrates	98.1%
Energy	91.8%

Two questions naturally occur. The first is: Was there any considerable difference in the pro-

portions of food digested by individual men? The second is: Did these men, with severe muscular exercise for about three hours each day and a diet which supplied, on the average, 154 grams of protein and 3,926 calories of energy per day, digest their food, on an average, more or less completely than do men in ordinary occupations with ordinary diet?

Average coefficients of availability.— There are now on record the results of nearly 200 American digestion experiments with men, mostly with mixed diet, and perhaps an equal or larger number of European experiments with single food materials and mixed diet. From the data thus obtained factors have been derived [18] which represent more or less nearly the average coefficients of availability of the nutrients of different kinds of food materials when eaten by ordinary men in health and at ordinary occupations. In working out these coefficients for availability food materials were divided into the following groups:

(1) Animal food materials, as meats, fish, milk, eggs, etc.
(2) Cereals, such as wheat, rye, barley and buckwheat flours, corn (maize) meal, etc.
(3) Sugars and starches.
(4) Vegetables, as potatoes, cabbage, turnips, etc.
(5) Fruits.

Referring to the original discussion for explanations we give the coefficients in Table 8, and with them the nitrogen factors for protein referred to above.

TABLE 8.— FACTORS FOR COMPUTING PROTEIN FROM NITROGEN AND COEFFICIENTS OF AVAILABILITY OF NUTRIENTS OF DIFFERENT GROUPS OF FOOD MATERIALS.

	Nitrogen factor for Protein.	Coefficient of Availability.		
		Protein. Per cent.	Fat. Per cent.	Carbohydrates. Per cent.
Animal food	6.25	97	95	98
Wheat, rye, barley, and their manufactured products	5.70	85	90	98
Maize, oats, buckwheat, rice, and their manufactured products	6.00			
Dried seeds of legumes	6.25	78	90	97
Sugars and starches				98
Vegetables	5.65	83	90	95
Fruits	5.80	85	90	90

The accuracy of these assumed coefficients of availability can be tested by the results of actual digestion experiments. This may be done by taking the diet used in a given experiment, computing the amounts of available nutrients by use of these assumed coefficients, and comparing the results with those of the actual experiments. In the average of 93 American experiments, in which the computed quantities of available nutrients were compared with those actually found by experiment, the following results were obtained: [19]

[18] The Availability and Fuel Value of Food Materials, by W. O. Atwater and A. P. Bryant, Report of Storrs Experiment Station, 1899, p. 73.

[19] Atwater and Bryant, Report Storrs Experiment Station, 1899, p. 87.

AVAILABILITY OF NUTRIENTS OF ORDINARY MIXED DIET.

	Protein. Per cent.	Fats. Per cent.	Carbohydrates. Per cent.
Computed by use of coefficients	93.6	94.5	98.1
Found by actual experiment	93.3	95.8	98.7

While it is not to be supposed that the coefficients given in Table 8 represent the actual availability of the nutrients of the different kinds or classes of food materials under all circumstances, the close agreement between results found by experiment and computed by these factors does imply that they represent a fairly close approximation to the actual availability in the average mixed diet of ordinary people in health.

This brings us to the question whether the availability of the food as digested by the four athletes in the present experiment agreed with that of the food eaten by men at ordinary occupations. By applying the coefficients of availability of Table 8 to the diet of the athletes, we can find what proportions of the total nutrients would probably have been made available if the same kind of foods had been eaten by men at ordinary occupations. Comparing the coefficients as thus calculated with those found in the experiments with the athletes, will show the agreement or disagreement. The results follow:

AVAILABILITY OF FOOD EATEN BY FOUR ATHLETES.

	Protein. Per cent.	Fats. Per cent.	Carbohydrates. Per cent.	Energy. Per cent.
Computed by use of coefficients of availability with ordinary men	93.7	94.2	97.1	91.0
Found by actual experiment with athletes	92.2	95.6	98.1	91.8

It will be remembered that the diet of the athletes furnished on the average 154 grams of protein, and had a fuel value of 3,925 calories, while in the diet of men at ordinary occupations the protein would not have averaged much over 100 grams, or the fuel value much over 3,300 calories per man per day.

It would thus appear that the athletes obtained just about the same proportions of available nutrients from their food as do men at ordinary occupations. This is equivalent to saying that the athletes on the average digested their food just about as completely as the average man does.

Differences in the digestion of food by the four individual men.— The above statements apply to the average results with the four men. The figures of Tables 6 and 7 bring out a striking difference in the amounts of nutrients rejected in the feces by the different subjects. The total

weights of the feces varied from 105 grams per day with A to 248 grams with D. The variation in the organic matter, from 21 to 35 grams per day, is somewhat smaller. The nitrogen varied from 1.3 grams per day with A to 2.3 grams with D, which is again a very wide difference. The range in the fats, from 4 to 11 grams, is in still wider proportion. With the carbohydrates on the other hand, the quantities are nearly alike. These differences may be explained on either of three suppositions:

(1) A may have eaten much less food than D. This is possible, but seems hardly probable. Actual observation at the time gave the impression that A ate fully as much as the others, and that if any one ate noticeably less than the rest, it was C; but of course no exact weighings of the quantities served each man were made.

(2) In the digestion of the food by A much smaller quantities of digestive juices may have been secreted than in the case of D.

(3) A may have a power of digesting food much more completely than D.

It may be that two or perhaps all three of these causes united to bring about the differences noted. The quantities of organic compounds and of energy in the feces per day come much nearer to the general averages with B and C than with A and D.

So far as this particular experiment is concerned, it is greatly to be regretted that the circumstances did not permit of separate determinations of the amounts of food eaten by each of the subjects. Such determinations would have shown the exact proportions of available and unavailable nutrients for each man. It would be interesting to know whether there was any difference in the physical conditions of the subjects corresponding to the apparent differences in the digestion of the food.

Two further points should be noted. The first is that on Sunday, June 24th, no work was done, and the amount of food eaten was less than on other days. It is hardly to be supposed, however, that this fact would materially affect the percentage of organic residues in the feces; still in estimating the digestibility and availability of food eaten during intense work, it would be more satisfactory to use the data for working days only. In this case the feces corresponding to the food of Sunday could not well be distinguished from the rest.

The second is the wide variation in the amounts of feces in the individual days, as shown in Tables 6 and 7. This illustrates the importance of extended and repeated experiments of this kind for obtaining reliable averages.

Importance of examining feces of men in training.— The feces were examined macroscopically at each collection. It was expected that with the large appetites of men with such severe muscular exercise and with the habit of rapid eating so common to athletes, that a not inconsiderable portion of the food, especially meats, would be swallowed so rapidly as to escape proper mastication. This rapid eating we have observed with athletes elsewhere.

On one day in this experiment the men ate canned corn at the evening meal. The next day all four had a marked diarrhea, and the feces contained undigested kernels of corn. These appeared in one case in less than twelve hours and in others within twenty-four hours after the ingestion. Thereafter canned corn was avoided. Here is an instance where an observation of a kind commonly neglected was of great practical importance.

In every way other than that just mentioned the feces appeared normal, and no large particles of undigested food were observed. We were told that the men had been advised to eat slowly and masticate their food well.

The above considerations lead to two suggestions; one is as to the desirability of the examination of feces of men in training, in order to detect indications of imperfect digestion and other irregularities. This has to do with the health and welfare of the men in training, and interests the attendant physician and the trainer. The other is the desirability of microscopical and chemical studies of the feces of athletes in training, for the purpose of obtaining information of possible value regarding the general effect of diet. This is a matter for the physician and the physiological chemist.

AMOUNT AND COMPOSITION OF URINE.

The urine from each subject was collected separately, and the nitrogen, urea, uric acid and heat of combustion of the dried residue of the urine were determined for each day of the experiment. The statistical results are shown in Table 9.

Quantities of total urine and constituents.— The most noticeable feature of the data in this table is found in the very small quantities of total urine and of the constituents determined. This is particularly marked in the case of A on the last two days, B on the last day and C on the third, fourth and sixth days. The quantities of total nitrogen, urea and uric acid and the heat of combustion are correspondingly small with the same subject on the same day. The question of the small daily excretion of nitrogen in the urine will be touched upon in the discussion of the income and outgo of nitrogen.

Urea and uric acid.— The ratio of these constituents in the urine does not differ sufficiently from day to day to warrant any inferences as to the effect of either the diet or the exercise upon their elimination. A considerable amount of labor was devoted to the determinations of urea and of uric acid along with those of the total nitrogen, in the hope that the data thus obtained might possibly throw some light upon the general question of the relation between their amounts and the amount and severity of the exercise taken. Despite the interest taken in this phase of the subject by Dr. Brown, and the detail and accuracy of the determinations of urea and uric acid made by him, the conclusions warranted are

more negative than positive. It is hoped, however, that the results here obtained, together with the results of other investigations which have been collected by Dr. Brown, may be published in another place.

There was a loss of urine from one of the subjects, C, on the sixth day, which was Sunday. He feels positive, however, that the amount which thus failed of collection was small, and that at no other time did such an oversight occur. Each of the other subjects is certain that there was no such loss in his own case. An attempt has been made to correct the figures for C on the sixth day in the following way: The average daily excretion of nitrogen in the urine by A, B and D for the six days, exclusive of the sixth, was 20.2 grams, and the amount on the sixth day was 17.6 grams. The quantity excreted by C on the other six days averaged 18.9 grams per day. Assuming that for C the ratio of the quantity for the sixth day to the average quantity for the other days would be the same as the average ratio for the other three men, the quantity of nitrogen excreted by C on the sixth day would be found by the proportion 20.2 : 17.6 18.9 : x (=16.5). Assuming the percentages of nitrogen and other ingredients and the specific gravity of the whole urine of C for the sixth day to be the same as in the 822 grams actually saved and analyzed, the figures would be as given in Tables 9 and 10.

NITROGEN BALANCE.

In striking a balance of income and outgo of nitrogen, it is customary to subtract the amount in the feces and urine from the amount in the food each day. The figures thus obtained in this experiment are given in Table 10, and show a gain of body nitrogen each day. The average gain per man per day is thus computed to be: Nitrogen 3.9 grams, protein 24 grams.

These estimates of amounts excreted are affected by three errors, each of which tends to diminish the estimate of amount of nitrogen excreted, so that the figures in the table make the amount of nitrogen stored in the body larger than was actually the case.

TABLE 9.— AMOUNT AND COMPOSITION OF URINE: EXPERIMENT WITH FOUR ATHLETES.

Lab. No.	Subject and date.	Amount.	Specific Gravity.	Total Nitrogen.		Urea.		Uric Acid.		Heat of Combustion.	
										Pr gram.	Total.
		Grams.		Pr ct.	Grams.	Pr ct.	Grams.	Pr ct.	Grams.	Calories.	Calories.
5,092	A:										
	June 19-20	1,086	1.031	1.81	19.7	3.48	37.8	.085	.92	.153	166
	20-21	1,216	1.032	1.93	23.5	3.86	46.9	.045	.55	.171	208
	21-22	1,213	1.032	1.91	23.2	3.60	43.7	.065	.79	.160	194
	22-23	1,169	1.028	1.74	20.3	3.30	38.6	.074	.87	.149	174
	23-24	1,275	1.029	1.60	20.4	2.99	38.1	.035	.45	.135	172
	24-25	937	1.030	1.76	16.5	3.30	30.9	.061	.57	.148	139
	25-26	927	1.033	1.82	16.9	2.85	26.4	.079	.73	.170	158
	Total	7,823	.....	.....	140.5	.....	262.4	.....	4.88	.....	1,211
5,093	B:										
	June 19-20	1,180	1.027	1.47	17.3	2.61	30.8	.051	.60	.127	150
	20-21	1,244	1.029	1.72	21.4	2.83	35.2	.043	.54	.149	185
	21-22	1,108	1.029	1.78	19.7	3.50	38.8	.043	.48	.146	162
	22-23	1,456	1.025	1.42	20.7	2.69	39.2	.042	.61	.121	176
	23-24	1,357	1.025	1.31	17.8	2.55	34.6	.028	.38	.116	157
	24-25	1,201	1.024	1.36	16.3	2.52	30.3	.038	.46	.115	138
	25-26	855	1.029	1.58	13.5	3.12	26.7	.040	.34	.147	126
	Total	8,401	.....	.....	126.7	.....	235.6	.....	3.41	.....	1,094
5,094	C:										
	June 19-20	1,076	1.031	2.09	22.5	4.02	43.2	.069	.74	.166	179
	20-21	1,209	1.030	1.79	21.6	3.10	37.5	.053	.64	.150	181
	21-22	962	1.028	1.52	14.6	1.81	17.4	.038	.37	.129	124
	22-23	826	1.028	1.50	12.4	2.83	23.4	.041	.34	.134	111
	23-24	1,582	1.027	1.45	22.9	2.76	43.7	.033	.52	.124	196
	24-25	822[1]	1.028	1.85	16.5	3.46	30.9	.036	.32	.161	144
	25-26	1,327	1.028	1.46	19.4	2.76	36.6	.055	.73	.137	182
	Total	7,874	.....	.....	129.9	.....	232.7	.....	3.66	.....	1,117
5,095	D:										
	June 19-20	1,743	1.027	1.44	25.1	2.71	47.2	.052	.91	.125	218
	20-21	1,358	1.028	1.40	19.0	2.75	37.3	.043	.58	.123	167
	21-22	1,738	1.028	1.47	25.5	2.96	51.4	.039	.68	.119	207
	22-23	1,720	1.022	1.21	20.8	2.25	38.7	.028	.48	.105	181
	23-24	1,529	1.024	1.24	19.0	2.39	36.5	.035	.54	.105	161
	24-25	1,857	1.020	1.08	20.1	2.11	39.2	.031	.58	.089	165
	25-26	1,284	1.029	1.48	19.1	2.88	37.0	.058	.75	.135	173
		11,229	.....	.....	148.6	.....	287.3	.....	4.52	.....	1,272

[1] Corrected for probable loss. The actual amount of urine was 822 grams. See this page.

The first error was due to an actual loss of urine from one of the subjects, C, on the sixth day. A correction for this was made in the figures of Table 9, which are used in Table 10.

The second serious loss is in the drying of the feces for preparation for analysis. This results in the volatilization of a small amount of nitrogenous material. Experience in this laboratory leads us to believe that this amount will not much exceed .1 gram in the total feces per man per day.[20] This error is so small as to be usually neglected, and no allowance is made for it here. Even if it were as high as .2 of a gram of nitro-

[20] See page 21 of Bulletin 69 of the Office of Experiment Stations, U. S. Department of Agriculture.

gen, it would make an error of only 1.25 grams of protein per man per day.

The third loss is in the nitrogenous compounds thrown off from the body in the water of perspiration, and may be of more consequence. Schäfer[21] cites various determinations of the quantity of urea and nitrogen excreted in the water of perspiration. Thus Favre found .044 grams urea per 1,000 cc. perspiration, and Funke 1.55 grams urea in 1,000 cc. of perspiration. Argutinsky found .363 and .410 grams of urea in 225 and 330 cc. of perspiration respectively. The same investigator also found .7 of a gram of nitrogen by extracting with distilled water the clothes worn by subjects actively walking or climbing during a considerable portion of the day. C. C. Esterbrook[22] found, in some experiments upon himself, that the perspiration contained from .1 to .3 per cent urea. In experiments with the respiration calorimeter,[23] in which the subject worked upon a stationary bicycle for eight hours each day, the amount of nitrogen found in the clothes by extraction with distilled water varied from .2 to .4 of a gram per day.

A still more pronounced elimination of nitrogen in the perspiration was found by Eikjnamn[24]

TABLE 10.—INCOME AND OUTGO OF NITROGEN IN EXPERIMENT WITH FOUR ATHLETES. AVERAGES PER MAN PER DAY.

	In food.	In feces.	In urine.	Gain.	Corresponding gain of body protein. N x 6.25.
	Grams.	Grams.	Grams.	Grams.	Grams.
June 19	27.5	1.9	21.1	4.5	28
" 20	29.9	1.9	21.4	6.6	41
" 21	24.5	1.9	20.7	1.9	12
" 22	25.4	1.9	18.6	4.9	31
" 23	24.2	1.9	20.0	2.3	14
" 24	19.6	1.9	17.4	0.3	2
" 25	25.9	1.9	17.2	6.8	43
Average for 7 days.	25.3	1.9	19.5	3.9	24

in three experiments with Malay medical students in the tropical climate of Java. The first experiment lasted three hours, during which .222 gram of nitrogen was excreted. The second experiment continued twenty-four hours, during which time there was found in the perspiration .761 gram of nitrogen. The third experiment likewise continued twenty-four hours, and there was an elimination of nitrogen in the perspiration amounting to 1.362 grams. The subjects were engaged in light occupation.

It will be noticed that the largest quantity of nitrogen excreted in the perspiration in any of the instances above cited, was with men with light bodily exercise in the very warm climate of Java. This was estimated at from .8 to 1.4 grams per day. The excretion of perspiration by the members of the crew in the periods of practice is very profuse, as may be understood when we consider that the total loss of weight during a row of from twenty to thirty minutes reaches as high as three or four pounds. How much nitrogen is contained in this perspiration we have no means whatever of determining.

If we were to take the loss of nitrogen in drying the feces at .1 and that in the perspiration at 1.9, we should have a total average of 2 grams, which would correspond to 12.5 grams of protein. This would reduce the gain of protein as indicated by the figures of Table 10, from 24 grams to 11.5 grams, or a little over one-third of an ounce[25] per man per day. Assuming the fat-free muscular substance to be one-fourth protein and three-fourths water, this would correspond to 46 grams, or a little over 1½ ounces of muscular substance daily. Such a gain of protein suggests two lines of queries. (1) Does the gain of nitrogen indicate an undesirable bodily condition? Is a man in the best physical condition for severe muscular strain when his body is gaining protein so rapidly? Does not ripeness of muscular development require that the body shall have attained approximate protein equilibrium? Could such a lack of nitrogen equilibrium have anything to do with staleness? How much stress is to be laid upon these questions we do not presume to judge, still less would we assume to say that the figures of Table 10 prove that the men were not in the best training. Least of all would we affirm a connection between nitrogen balance and tendency to staleness. But we do consider the subject of sufficient interest to call for further study. (2) Was the amount of protein found in the study excessive? The figures of Table 5 (page 605) compare the quantities of nutrients in the food of the athletes in these experiments with the food of other athletes and of men at ordinary occupations. It is noticeable that all of the dietaries of men subject to intense muscular strain supply large quantities of protein as well as energy. Indeed, the proportion of proteids to fats and carbohydrates is larger than in the diet of people at ordinary occupations.

Tradition in athletic quarters says that a man cannot "get into condition" without eating large quantities of meat, and especially of lean meat. It appears to be a general usage of athletes and prize fighters in Europe and the United States to eat large quantities of nitrogenous food. How generally this is true in Asiatic countries the statistics we have been able to find do not fully explain. The theory suggested by Zuntz[26] that intense muscular effort involves a large protein supply seems intrinsically rational, and is supported by a large amount of evidence. It is, however, a question whether the amount of protein eaten by these athletes was or was not the most appropriate.

In this connection the apparent usefulness of sugar as a supplementary food for men subjected

[21] Schäfer's Textbook of Physiology, vol. i, pp. 671-673.
[22] Scottish Medical and Surgical Journal, 1900, vi, 120.
[23] The writers and associates, Bulletin 69, Office of Experiment Stations, U. S. Department of Agriculture, and unpublished data.
[24] Virchow's Archiv, 131, p. 170. Also abstracted in Bulletin 45 of the U. S. Department of Agriculture, Office of Experiment Stations, Digest of Metabolism Experiments, by W. O. Atwater and C. F. Langworthy.
[25] One ounce avoirdupois = 28.5 grams.
[26] U. S. Department of Agriculture, Experiment Station Record vii (1895-1896), p. 550.

to an intense muscular strain, is worthy of notice. The experiments of Stovis,[27] Zuntz and Schumburg,[28] Prantner and J. Stowasser[29] and others, as to the beneficial value of sugar in muscular work has had practical corroboration in experiments made on a large scale on certain Dutch rowing clubs[30] and on soldiers.[31] We do not presume to make any suggestions concerning the value of sugar as an article of diet during training, but the results cited above would seem to indicate that the question is at least worthy of consideration and careful investigation.

SUMMARY.

In June, 1900, a study was made of the actual amounts and composition of food eaten by four members of the Harvard University crew during one week of active training immediately preceding a race. The data obtained also include the statistics of the quantity and composition of solid and liquid excreta during the same period. The investigation thus included a dietary study, a digestion experiment, a study of the excreta, and a nitrogen metabolism experiment.

Dietary study.— The four men ate on the average 154 grams of protein, 139 grams of fat and 473 grams of carbohydrates, with a fuel value of 3,925 calories per man per day. These results compare with those of other studies as follows:

Protein and Energy in Food per Man per Day.

	Protein.	Energy.
	Grams.	Calories.
Four men of Harvard University crew, New London, 1900	154	3,925
Harvard University crew, New London, 1898.	160	3,945
Average, Harvard and Yale University and Freshmen crews, Cambridge, New Haven and New London, 1898	155	3,965
Average, 38 dietaries of men at ordinary occupations, United States	102	3,310

It thus appears that the four men ate just about as much as the Harvard and Yale crews in 1898, and that their food had about 50% more protein and 16% more energy than that of the men at ordinary occupations in the United States whose dietaries have been studied.

Digestion experiments.— Comparison of the amounts of nutrients in the food with those in the solid excreta shows the amounts that were actually available. These are nearly, but not quite, the same as the amounts actually digested. They differ from the latter by the amounts of metabolic products in the feces. The average coefficients of availability in these digestion experiments were:

Protein	92.2%
Fat	95.6%
Carbohydrates	98.1%
Energy	91.8%

These figures are very nearly identical with those obtained by taking the coefficients of availability of food as found by experiments with men on ordinary diet and at ordinary occupations, and applying them to the diet of the men in the present experiments. This means that the four athletes, on the average, digested their food just about as completely as the average man does. There were, however, marked differences in the amounts and composition of the feces of the different men, such, indeed, as to imply wide differences in their capacity to digest their food.

Studies of the excreta.— No especial studies were made of the composition of the feces. Comparisons of the urea and uric acid in the urine failed to bring any results such as to warrant conclusions regarding the effect of severe muscular exercise upon their amounts.

Nitrogen balance.— One notable feature of the experiments was found in the fact that the nitrogen excreted by the kidneys and intestines was considerably less in amount than the total nitrogen of the food. This means that there was a considerable storage of nitrogen in the body. The amount was such as to correspond to an average of not far from 24 grams of protein per day, if no allowance is made for the excretion of nitrogenous compounds in perspiration through the skin. Even after making allowance for a very considerable excretion of nitrogen through the skin, this gain is so noticeable as to suggest the queries whether men who are storing nitrogen to such extent are in the best physical condition, and whether the amount of protein in the diet was the most appropriate for the purpose.

Need of further research.— Perhaps the most important conclusion to be derived from the experiments is that further and more detailed investigations are needed to show what diet is best for men under such severe muscular strain as that of oarsmen in training for races.

[27] Dietetic and Hygienic Gazette, 12 (1896), p. 31.
[28] Deut. Zuck. Ind., 12 (1897), pp. 560, 592.
[29] Centrbl. f. inn. Med., 20 (1899), p. 169.
[30] U. S. Department of Agriculture, Farmers' Bulletin, 93, p. 18.
[31] Leitenstofer. Deut. Mil. Aertzl Ztschr., 27 (1898), p. 305.

SOME FORMS OF INTESTINAL OBSTRUCTION DUE TO ADHESIONS.[1]

BY A. T. CABOT, M.D., BOSTON,

Surgeon to the Massachusetts General Hospital.

It is not my purpose to consider in this paper the subject of internal strangulation behind bands, but rather to present the results of some personal experience in cases where, as the result of extensive adhesions, the functional activity of different parts of the alimentary canal has been interfered with.

Adhesions may cause this sort of interference with the functions of the stomach and intestines by limiting the motility of these organs that require the greatest freedom of motion, or by holding them in such awkward, twisted positions that the passage of their contents is impeded. Such an interference with the functions of the stomach is often seen as a result of adhesions following inflammations about the gall bladder and the pancreas, or occurring as a secondary effect of ulcers of the stomach or duodenum. These

[1] Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1901.

conditions are of great importance, and give rise to manifold symptoms which well repay close study. This is, however, a chapter of the surgery of the stomach, which I do not propose to enter upon here, for it would open up a wider subject than I propose for myself in this brief paper.

I shall confine myself here to certain chronic conditions of obstruction in the intestinal canal, consequent upon partial twists and kinks in the bowel, which are prevented from untwisting themselves by adhesions which tie them to the parietal peritoneum.

Under these conditions the symptoms of obstruction are usually not constant, for if the bowels

Figure 1.

are in good order they are able to pass their contents comfortably through the partially obstructed coil. When, however, they become overloaded, or when, in consequence of neighboring inflammation, the intestinal peristalsis is interfered with, there may be produced all the symptoms of an acute stoppage. In the cases of this sort which I have seen, the seat of obstruction has been either in the ileum, close to its entrance into the cecum, or in the sigmoid flexure.

Has this experience been accidental, or is there a reason why these two portions of the intestinal tract should be more liable to this form of obstruction? A little consideration will, I think, convince us that this localization is not the result of accident. The other portions of the small intestine are so movable that they can shift about and adapt themselves to any coil which becomes fixed by adhesions. In the large intestine, on the other hand, its relatively fixed position prevents its being thrown into kinks, so that, even if it is fixed by adhesions, it keeps a more or less normal position. At both of the above-named points, however, we have a movable portion of the intestine running into a more fixed part — the ileum into the cecum, and the sigmoid flexure into the rectum. As we shall see presently, this relation of a movable to a fixed portion is favorable to the production of the form of obstruction about which we are speaking.

In studying the mechanism of this form of obstruction let us first consider that taking place in the ileocecal region. At the ileocecal valve the ileum — which up to that point has had the greatest mobility — passes into the cecum, which is relatively fixed. The appendix, close by, makes this region peculiarly liable to inflammation and consequent adhesions. If now, during an attack of appendicitis the ileum sags downward or across the lower end of the cecum, it is liable to become attached to the parietal peritoneum in such a way as to make it form a sharp turn at its entrance into the large intestine. When an operation is undertaken on a case of this sort, the cecum is found tied down by adhesions so that it cannot be readily drawn up into the wound. On following the lineæ tendineæ downwards they are seen to disappear beneath a coil of small intestine anchored by adhesions over the lower end of the cecum. This coil is firmly adherent to the parietes along the pelvic brim outside of the cecum, and must often be dissected with the knife from these attachments before it can be freed and pushed towards the middle line. When it has been thus freed it is seen to be the lower portion of the ileum, and the appendix is usually found buried beneath it or curled back under the head of the cecum. I have met with several such cases; and, by operation for the removal of the appendix between attacks, have had the opportunity of verifying the above-described pathological condition.

A review of the clinical history in several of the cases thus observed has convinced me that this malposition of the ileum produces a decided obstruction, and distinctly modifies the symptoms in inflammatory attacks in this region.

Such a buried appendix is subject to exacerbations of inflammation of a subacute type, and during such an attack, if the evidences of obstruction, namely, the obstipation and pain, are quite out of proportion to the fever and other signs of inflammation, we are justified in suspecting that a mechanical obstruction is superadded to the appendicitis. This suspicion will be confirmed if a mild but thorough catharsis gives immediate relief.

It might be thought that the separation of adhesions and the restoration of the ileum to a more normal position would be sufficient for the relief of such cases. This is, however, not the case. In the year 1894 I operated on two patients having this condition. In neither of them could the appendix be found by a search which, at the time, seemed to me thorough. I therefore contented myself with a thorough separation of adhesions. Both of these patients experienced some temporary relief from the operation, but presently the attacks returned. One of them was lost sight of; but upon the other I did a second operation, and found that the adhesions had re-formed. After again separating them, the appendix was sought by a difficult dissection, and found buried in cicatricial tissue beneath the cecum. It was removed, and this operation was followed by complete relief. From that time I have never failed to find and remove the appendix in these interval operations, and have never seen any recurrence of adhesions to a sufficient degree to cause obstructive symptoms.

Since this paper was read I have met with one other case of adhesion about the cecum, probably dependent upon appendicitis, which presented unusual features and is worthy of record here.

Case A. E. P. D., a man of thirty, entered the Massachusetts General Hospital March 3, 1901, with an acute attack of appendicitis. He had had but one previous attack that he could remember, and this occurred last Christmas evening, when he had severe vomiting and pain in the abdomen, but was up and at work the next day. From that time he was subject to slight pains in the abdomen till the night before entrance, when he was again seized with pain and vomiting, which persisted up to the time when I saw him.

As soon as preparations could be made, he was operated on. The appendix was found to be large, tense and congested, with flakes of lymph surrounding it. It was quickly removed, and then the following further condition was found: About midway between the base of the appendix and the hepatic flexure the ascending colon was bound to the lateral wall of the abdomen by a firm, well-organized adhesion. The colon beyond this point was of full size and contained gas, the small intestine was congested and moderately distended, while the cecum was totally collapsed and pale in color. As the adhesion was separated the colon gradually expanded and rolled towards the middle line, and the cecum filled and assumed its normal proportions. When the separation was fully effected, it was seen that the upper part of the adhesion had been attached to the intestinal wall on the inner side of the colon not far from the ileocecal valve. Thus it was plain that by the gradual pull of the adhesion the intestine had been rolled out until the inner wall — that is, the wall which should have looked inward towards the middle line of the body — was held tightly against the lateral wall of the abdomen in the right loin.

To explain this curious condition of an empty cecum lying between a distended small intestine and a full ascending colon, we must conclude that the band of adhesion, besides encircling and closing the large intestine, also so pulled upon the ileocecal valve as to obstruct the passage through it as well. The insertion of the adhesion close to that valve would make this supposition seem the probable explanation. The exact manner in which this obstruction was brought about could only have been determined by opening the caput coli before cutting the adhesion. This naturally was not thought of. After a complete division of the adhesion the abdomen was tightly closed, and the patient made a quick and almost a febrile convalescence. The speedy occurrence of free and full evacuations of the bowels showed how entirely the obstruction was relieved.

This is one of the cases which shows how a mechanical obstruction, which has not before amounted to a complete occlusion of the bowel,

Figure 2.

may lead to a total stoppage, when an inflammatory or other condition causes an undue distention of the intestines in its neighborhood.

ADHESIONS OF THE SIGMOID FLEXURE.

On the opposite side of the abdomen the sigmoid flexure again presents a movable portion of the intestine entering below into a more fixed part. When the mesentery of the sigmoid is long this portion of the gut readily sags down into the pelvis, and, if an inflamed condition of the peritoneum supervenes, may readily become attached in that region. When this happens a sharp bend is formed at the junction of the sigmoid flexure with the rectum.

The writer has met with three cases in the past eighteen months in which such a malposition of the sigmoid has caused serious obstruction. Two of these patients were elderly men, and the third was a woman still young. The first case I will report in some detail, on account of special points of clinical interest.

CASE I. G. A. L., a spare man, fifty-four years of age, was seen on December 8, 1899, in consultation with Dr. H. W. Boutwell of Manchester, N. H., when the following history was obtained: In the previous April, without apparent cause, Mr. L. had a severe attack of abdominal pain, accompanied by obstipation. He was confined to the bed for several days, and during that time there was great sensitiveness to pressure in the left iliac region. Following this experience he had, within a short time, two similar attacks of less severity. He was then pretty well during the summer, but in September he had a fourth attack, ushered in this time by a chill. In addition to the obstipation, he now had also difficulty in urinating, not, however, amounting to a complete retention. On December 1st he had still

Figure 3.

another attack, with retention requiring the use of the catheter. Following this he had a constant uncomfortable feeling of desire for urination, and it was very difficult, even with laxatives, to keep the bowels open.

Examination of the urine showed it to be of good specific gravity (1.018), acid, with a slight trace of albumin, and a small sediment consisting of pus, large round and small caudate cells, with neither crystals nor casts. Nothing could be felt in the abdomen beyond a slight, even doubtful, sense of resistance in the left iliac region, which was a little sensitive to pressure. The examination of the rectum revealed nothing abnormal. The prostate was not large. A sound (No. 26 French) passed easily through the urethra, but was grasped rather snugly by the constrictor urethræ muscle. The diagnosis of some partially obstructive condition of the sigmoid flexure was made; but neither the nature of this obstruction nor the reason for the implication of the bladder could be made out.

Mr. L. came to Boston for further study of his case. His bowels were kept open with compound licorice powder and injections, but there was no improvement in his condition; and it was found that the injections always caused great pain throughout the bowels, apparently due to exaggerated peristalsis. Without an injection he was unable to have any movement at all. It was now noticed also that he had great sensitiveness over the base of the bladder.

The persistence of the condition of partial obstruction, and the very great discomfort it involved, seemed to demand an exploratory operation; and Dr. F. C. Shattuck, who now saw the patient, coinciding with this view, this course was decided upon.

On December 27th an incision was made in the median line. The upper part of the sigmoid flexure was adherent to the top of the bladder and to the neighboring portion of the pelvic wall on the left by firm adhesions. When these were separated so that this part of the sigmoid flexure could be lifted up, it was found that a very considerable portion of the flexure below this was carried down into the pelvis and held there by this fixation of its upper part. Searching for the cause which led to this condition, the appendix was found tied up and surrounded by adhesions, some of them more recent than that which existed around the sigmoid flexure. The appendix itself was very small, not larger than that of a new-born child, and its base was tightly constricted by fibrous bands around it. The appendix was removed, and further search failed to show any additional trouble.

The patient made a good recovery, and was relieved of the obstructive symptoms which had been so troublesome. Some months later he had a slight recurrence of discomfort in the region of the sigmoid flexure. This soon passed away, however, and was no more than might have been expected in a sigmoid flexure so long and lax as this was known to be.

CASE II. J. W. T., aged sixty-five. This patient at the age of thirteen had dysentery, which confined him to bed for several weeks. The following year he had another attack, which lasted two months. Off and on during the next thirty years he had mild attacks of diarrhea associated with slime and blood in the stools. During the past six years he has had no such symptoms. He was operated upon for fistula ani thirty-five years ago, and since that time has had three other operations for recurrent fistulæ. Thirty years ago he began to be troubled with tympanites, which he controlled by mild laxatives. This reappeared at intervals, however, up to the present time. Four months ago he had an attack of abdominal pain located in the left iliac region.

This pain was relieved by a free action of the bowels, but during the attack it was severe enough to cause vomiting. Since that time he has had four such attacks, each one being associated with vomiting, which gave great relief. During the attack pressure in the left iliac region would give relief, and there was no tenderness. In all the above attacks large enemata of water were used (three quarts being thrown in), and when the whole enema was in the bowels relief came at once. When the enemata came away they usually brought considerable fecal matter with them. On the 19th of May, 1900, in the morning, he had another of these severe attacks of pain. This time the pain was not relieved by enemata, though several were given. Opiates controlled the pain but partially.

I saw him after this condition had persisted for three days. The obstipation was complete.

Figure 4.

Operation was advised and at once accepted. The incision was made a little outside of the left linea semilunaris. The sigmoid flexure was found attached to the parietal pelvic peritoneum, exactly as in the last case, only the adhesion did not extend on to the bladder wall. No sign of inflammation about the appendix was found in this case. The past history of dysenteric symptoms suggested the probability that the adhesions were due to inflammation about the descending colon and sigmoid. This adhesion was separated, and the operation was followed by complete relief and a rapid convalescence.

Case III. A woman of thirty, who had borne children and had had much pelvic distress, with a strong tendency to retroversion and prolapse of the uterus, had a ventral fixation done for the remedy of this condition. At this operation the sigmoid flexure was found tied down to the pelvic brim, much in the manner described in the other two cases. The Fallopian tube lay close beneath the adherent sigmoid and was slightly attached to it, indicating the probability that the inflammation which led to the adhesions was a mild grade of salpingitis. A subsequent inquiry elicited the fact that serious and obstinate constipation had troubled her for a long time, and that often the bowels resisted in the most obdurate manner all efforts to bring about a movement.

The form of obstruction in all of these cases was intermittent and incomplete; and in all of them, except Case A, the condition found had the same characteristic relation of a movable portion of the intestine twisted and adherent in a false position just at its entrance into a fixed part of the bowel.

The observations are too few, perhaps, to establish any rule, but their similarity is so striking as to fix the attention and to stimulate further study.

DESCRIPTION OF CUTS.

Figure 1 represents diagrammatically the condition found by the author in a number of cases of chronic appendicitis. The lower end of the ileum is drawn across the lower end of the cecum, covering the appendix.

Figure 2 represents the adhesions of the sigmoid flexure found in Case I. The fingers are represented as pressing down the top of the bladder, to which the sigmoid flexure is attached. The adhesions run along the brim of the pelvis, well out on the side of the abdominal cavity.

Figure 3 represents the adhesion in Case A before it was separated, and Figure 4 represents the same after the appendix was removed and the adhesion dissected off. The rough line crossing the cecum represents approximately the site of the attachment of the adhesion.

CATHARSIS IN ABDOMINAL SURGERY.

BY L. R. G. CRANDON, M.D., BOSTON.

The comparative effects of different cathartics and enemata, before and after operation, in surgical cases where the abdomen is the part of the body affected, is a study, the practical importance of which no one will question. I give the results of observations made during my service as house officer at the Boston City Hospital, and only regret the study is not a more exhaustive one. All the cases here considered were under the care of Drs. Gavin, Burrell and Monks, and are reported with their kind permission.

As in every clinical experience, so in this one, it is impossible to put a check on results to make conclusions absolute. Conditions cannot be controlled beyond a certain measure, and one is continually hampered by the personal factor of the patient. A record of facts, then, and a reasonable interpretation is all one can hope to give.

It has been proved by a number of studies in normal intestine and by use of purgatives, that peristalsis is almost entirely a reflex action. Direct experimentation as to how far up in the small intestine a wave may be started reflexly by stimulation of the large intestine alone has apparently not been done. The lower half of the ileum has been determined to be the part where the intestinal contents move fastest.[1] It has been found that the vagus nerve, when stimulated reflexly or directly, increases peristalsis, and that moderate stimulation of the splanchnic nerve decreases it. Any decrease, then, in the normal activity of the nerves and nerve centers must result in constipation.

It has been shown by experiments also that the circulation of the blood through the intestines greatly influences peristalsis, and disorders in the blood supply readily bring on intestinal disorder.[2] "Hepatic torpor," so called, or a diminished flow of bile, has its constipating effect partly in diminishing an irritant which may stimulate peristalsis, partly in diminishing a saponifying agent. Since the work of Pfaff and Balch our cholagogues have been apparently reduced to one; namely, bile, human or bovine.[3]

The most important conditions, then, under which peristalsis may take place along the small intestine are (1) a relatively healthy condition of the whole thickness of the intestinal wall, and (2) the integrity of the reflex arc. In surgical cases the wholeness and irritability of the reflex arc are similar to that of the whole nervous system in the given case, and therefore depend only on the general condition of the patient, and not on the local surgical lesion. The first requirement of peristalsis — that is, the soundness of the intestinal wall — is the more important one, and this study was therefore directed toward the relation between the various forms of local stimulation and the condition of the part stimulated; namely, the gut. It was directed toward the best means of keeping the alimentary contents moving, in each case having in mind, however, a picture of the local condition of both large and small intestine. The object was to obtain the advantages of drainage and depletion which follow catharsis, and at the same time to obtain rest for the parts affected, the least loss of strength and the greatest comfort for the patient.

It may be urged that the comfort of the patient is a small consideration compared with real profit to him that may be incompatible with such comfort; but on further thought, the experience of anyone dealing with acute surgical conditions in the abdomen will tell him that griping pain from cathartics, with its consequent restlessness and loss of sleep, may be just enough in some cases to turn the patient back, to prevent him from starting on that reaction of rest so essential after surgical procedures.

In the series which I wish to present there are 179 abdominal or pelvic cases, which are divided as follows:

	Total.	Lived.	Died.
Peritoneal and pelvic inflammations and ovarian cysts	148	109	39
Tuberculosis	8	8	0
Malignant disease	2	0	2
Obstruction (mechanical)	21	14	7
	179	131	48

There are two principal ways for artificially inducing a movement of the bowels in a patient sick in bed; (1) by drugs by mouth (either in one large dose or in many small doses), and (2) by enemata. The cases in this series are accordingly divided into several classes, each of which, as will be seen, has its special bearing on the question as to the best means of moving the bowels:

(*A*) Inflammatory conditions of the abdomen before operation.

(*B*) Diseases of the female pelvis — outside the intestinal tract — before operation.

(*C*) All abdominal and pelvic affections after operation.

(*A*) In the first division come acute and recurrent appendicitis, and general peritonitis from perforation of the gut. In a large proportion of these cases before they were brought to the hospital the old rule of Dr. Holmes had been followed. This rule was to "give a cathartic, then go home and read up the case." For example, in 70 cases of appendicitis, 47 had had Epsom salts and 14 some other drug, the compound cathartic pill and calomel being the favorites. Over half of these had perforation of the appendix. Cases of this sort are common. I give two as illustrations.

CASE I. N. S., female, twenty years old. Four days before admission there appeared the first onset of general abdominal pain, nausea and fever. The pain soon became fixed in the right iliac region. There had been no movement for thirty-six hours before the onset. There was some spasm, no tumor. She had then been given calomel, one-half grain every hour for six doses. At the end of twelve hours she had a sudden griping, ripping pain in the appendix region, with considerable relief in half an hour, followed by a loose movement. Examination on admission shows a definite right iliac mass and considerable general spasm. Operation fifteen hours later reveals abscess from perforation of appendix; recovery.

CASE II. F. W., male, thirteen years old, third day of second attack. Forty-eight hours before admission he was given about an ounce of Epsom salts, with a good movement soon after. Examination on admission shows distended spasmodic abdomen, general tenderness, most intense in the right iliac fossa. Operation discovers the proximal half only of a gangrenous appendix, free fluid and feces in the peritoneal cavity — practically no adhesions; fatal result.

One cannot say in cases of this class that perforation is caused by active catharsis, for it may

[1] Sabbatani and Fasola; Arch. Ital. de Biologie, 1900, xxxiv, ii, 186.
[2] Hare: Practical Therapeutics.
[3] Journal Experimental Medicine, 1897, ii, 49.

be that increased movements of cecal contents free the outlet of an obstructed and distended appendix, and so prevent rupture. One may fairly say, however, that in many instances after laxatives by the mouth, symptoms are aggravated. This exacerbation of symptoms may be due to the increased peristalsis causing strain on newly formed adhesions in the iliac fossa, and consequent extension of inflammation. Movements of the wall of the small gut are particularly undesirable at this time. Peristalsis has been inhibited by the neighboring inflammation as a protective measure. Or, the aggravation of symptoms following a cathartic, if not due to the stirring up of an inflamed part, may be caused by increased tension in the appendix or rupture of it. To pour the accumulation of twenty feet of small intestine into the cecum must raise the tension in that organ, especially if it be already distended with feces or gas. All this may be avoided, and the appendix drained if possible at the same time, by emptying the large gut from below by an enema. The liquid contents of the small intestine may then come down naturally, when peristalsis can no longer do harm.

(*B*) In the second class are included pelvic diseases before operation; that is, cases of pelvic peritonitis through tubal infection, salpingitis, ovaritis and acute endometritis. There are 44 in the list. Most of these cases had had cathartics by mouth before coming to the hospital, and all had an enema on admission. It was only rarely that symptoms did not abate in twelve hours; there were free movements, an appreciable drop in temperature, and a disappearance of pain, spasm and tenderness. Here, then, the alimentary tract being so little affected, we are at liberty to empty the large intestine by enema, and at the same time to empty the upper bowel by drugs given by the mouth, thus getting the benefits of depletion and drainage by increased peristalsis in the upper part of the intestinal tract.

When the uterus, or tubes, or pelvic tumors have been removed, that is to say, in noninflammatory pelvic cases, it is unquestionably better, for fear of mechanically disturbing the adjacent wounds, not to distend the rectum with enemata, but rather to induce peristalsis from above. A small oil enema, however, in these cases prevents straining.

(*C*) It is the third class, namely, all abdominal cases after operation, upon which most interest and importance hang. Amongst these are included 132 celiotomies, 10 of which are for disease of the internal female genitals. In about one-fourth, or 30 cases, calomel was given after operation in two ways: either one-tenth grain every hour to 10 or 20 doses, immediately after recovery from the anesthetic, or one-half grain every three hours to 5 doses at the end of the second day. Of the 30, six complained of "griping cramp-like pain," 5 of these having had the larger and less frequent doses; 3 had movements as result of small doses, 12 as result of the larger doses; 15 had no movements; 18 had abdominal discomfort described as "rumbling," "feeling blown-up," "all-gone feeling," etc. Two had sore mouths (in these cases powdered calomel was placed upon the tongue, but no water was allowed on account of persistent vomiting, the patient being obliged to swallow the calomel as best he might with the help of saliva). Twenty-seven had dirty, bad-tasting tongue, with consequent aggravation of thirst. In only one case did it seem that there might be a connection suggested between free use of calomel and an untoward result.

Case III. Male, fifty-four years old; subacute appendicitis; operated; no pus; one-tenth grain calomel every hour to 20 doses; after thirty hours a profuse diarrhea started and persisted in spite of most strenuous therapeutic efforts, till his death at the end of four days. No general peritonitis.

In 51 cases after operation absolutely no cathartic was given by mouth till at least ten days after operation, and in many not till late in the third week. The bowels were moved solely by enemata. Seldom earlier than twenty-four hours after operation, but usually then, an enema was given through a No. 30 French soft rubber catheter, passed along the finger high into the rectum and into the sigmoid, if possible. The enema was made up of:

℞

Epsom salts (50% sol.).	
Turpentine.	
Glycerine,	*aa* ℥ *ij*.
Water,	℥ *vj*.

This enema, which is in constant use in the hospital, is held as long as possible by the patient, and usually produces a good movement of soft feces and gas, with no tenesmus. The sacrum and buttocks should be well oiled before this enema, to protect the skin from blistering, if it gets wet from the turpentine. The enema is repeated, as a rule, possibly three or four times on consecutive days, and after that movements are readily induced by an enema of suds and glycerine — a pint to two ounces. In the turpentine enema the proportions above given seem to produce a maximum result with minimum discomfort.

The remaining 51 cases were treated usually by enemata alone, occasionally combined with calomel, a saline, or with other cathartics, and present varying results, the patient's comfort being, on the whole, proportionate to the number of movements by enema alone.

Figures as to the effect on temperature of either method of inducing a movement, from above or below, can have no value, because so many elements serve to determine each patient's condition at a given time. It may be said, however, that a dejection by enema will lower a temperature $\frac{1}{2}°$ to 1° within two hours, and coincidently produce subjective relief where drugs by mouth take three to twelve hours.

In the entire list given is one case of general peritonitis that recovered, and there are many, of course, where there was beginning inflammatory

reaction, as shown by the general spasm before operation, and the fibrinous flakes discovered during it. In all these after operation the bowel was emptied by stimulation from below; that is, by enemata, rather than by irritation of the many feet of small intestine above. There are 5 instances of appendix so thoroughly gangrenous that there was no stump to be tied off or invaginated. In these the inflamed bowel was kept empty by enemata, and yet given surgical rest. In none of these did a fecal fistula appear.

Another class of cases to which much of this reasoning applies are those which are operated for radical cure of inguinal hernia. An effective enema avoids straining at stool, and prevents the pull on the newly sutured muscles. In no case was there apparently developed a dependence on enemata after convalescence. In the third week cascara was given occasionally, and later natural movements were soon established.

This method — that is, using enemata alone after operation and before operation in all cases where the alimentary tract is involved — combines the best in both the so-called medical and surgical treatment: peristalsis is checked, quiet for the diseased part is obtained, and drainage by the shortest way is assured. In the line of treatment by enemata the fecal receptacle — the large intestine — is kept empty; distention with gas, most of which is formed in the colon, is never considerable; inspissated rectal contents cannot remain, and so block the exit of feces or gas from above; straining at stool, with consequent pull on the abdominal wound or new adhesions, never occurs; the rectal tube for the further relief of gas, if necessary, does not get plugged, and such nourishment as the stomach and intestine have been induced to accept is not unduly hurried along at a time when the patient needs all the strength he possesses.

The conclusions which seem to me warranted are that: (1) In acute pelvic peritonitis both enemata and drugs by mouth should be used to produce catharsis before operation; drugs by mouth and oil enemata after operation. (2) In all acute inflammatory conditions of the abdomen where the alimentary tract is involved, the bowels should be moved by enemata alone, before and after operation, the enema of salts, turpentine and glycerine being the best.

Clinical Department.

A CASE OF MEASLES COMPLICATED BY APPENDICITIS.[1]

BY HAROLD WILLIAMS, M.D., BOSTON.

M. P., aged twelve years, first complained of feeling ill on March 31st. He was never a strong boy, and had frequently suffered from attacks of gastro-intestinal disturbance. He had had measles some years previous. The symptoms of present attack consisted of nausea and general malaise. Temperature 100°. He was put to bed and dieted.

April 1st. He was less comfortable, though no new symptoms appeared. Temperature 101°.

April 2d. Patient complained of slight sore throat and vomited once. Temperature 102°.

April 3d, I first saw him. Patient not so comfortable as upon days previous. Temperature 103.4°. Had vomited once or twice; complained of abdominal pain; cough, weak eyes and sore throat. Inspection: Conjunctivæ slightly injected; mouth red, with striking congestion of alveolar processes; congested appearance of posterior pharynx and a catarrhal inflammation of right tonsil to which uvula was adherent. Koplic sign not present. Careful examination of the abdomen showed some tenderness in different places; always fleeting and never localized.

April 4th. Well marked eruption of measles on face and behind ears. Eruption confluent; conjunctivitis more marked; cough still slight; abdominal symptoms as before. Temperature 104°.

April 5th. Eruption well marked and extending over neck and trunk. Temperature 104.4°. Early in the morning patient had complained of pain in right side. This pain had steadily increased in severity. At 10 A.M., when I saw him, it was exactly located at a point an inch above Ponpart's ligament; it was increased on the slightest pressure, and the locality was indicated by patient with one finger. There was neither dullness nor induration. The diagnosis of an acute inflammation of the appendix was made. Dr. Arthur T. Cabot was called, and the case was placed in his charge. It was also thought advisable that Dr. J. H. McCollom should give us the benefit of his wide experience in measles, the association of which disease with a fulminating appendicitis in a boy of delicate physique seemed a matter of some gravity. Dr. Cabot, in view of the probable rapidly advancing process, decided upon immediate operation, in which decision Dr. McCollom and I concurred. The operation was performed by Dr. Cabot two hours later, with the assistance of Dr. Hugh Cabot.

April 6th. Temperature fell to 99° during night, and remained at this point throughout a remarkably satisfactory convalescence.

Pathological examination of the appendix by Professor Mallory is as follows:

April 6, 1901. Appendix; gross examination: Appendix 4.5 cm. long, varied from .6 - .8 cm. in diameter. Somewhat swollen in middle two-thirds. Serous coat injected, especially at tip; fresh fibrin adherent in places, forming irregular yellow areas. Mesentery injected. Split open nearly to tip; contains a fecal concretion size of small bean. Proximal end of mucosa swollen, lumen quite small and partly filled with creamy, tenacious, purulent material; beyond this is a definite enlargement of the lumen, in which the concretion closely fits; the mucosa here is dark red to greenish, and is evidently becoming gangrenous; beyond this dilatation the mucosa is thickened, and there is some mucopurulent secretion.

Anatomical diagnosis.— Acute appendicitis.

Microscopic examination of a longitudinal section shows an acute exudative process, most marked on the

[1] Read before the American Pediatric Association, Niagara Falls, May 29, 1901.

outer surface of the appendix. The mucosa is fairly well preserved, but is infiltrated in places with numerous polynuclear leucocytes.

The event proves, so far as we can judge from a single case, that the complicating presence of measles is not a contraindication for the operation of appendicitis under circumstances in which the highest surgical skill is obtainable. The combination of the two pathological processes is, so far as I know, a rare one.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

NON-OBSTRUCTIVE, POST-OPERATIVE ANURIA.

F. Tilden Brown[1] makes use in this article of a case in which anuria followed upon nephrectomy, to illustrate the subject of post-operative anuria in general, and does it in a pleasing way.

Death resulted from heart failure and renal suppression, and the causes of these conditions in this case are inquired into. The three probable factors concerned in them he states as (1) chloroform anesthesia; (2) compression of the kidney and vessels of its pedicle and subsequent hyperemia, produced by a long-continued pressure from the position of the body placed on its side over sand bags; (3) some essential vasomotor reflex started by ganglionic pressure, or through the renal plexus, from removing the fellow kidney, or a congestion incidental to an increased physiological demand. The remaining kidney showed at autopsy the following condition: Weight 6½ ounces; rather pale. Some congested stars on the surface; surface smooth. Glomeruli congested. Markings indistinct; pyramidal markings somewhat exaggerated. Pelvis slightly distended. Mucous membrane congested and shows petechial spots. The urine from this kidney had been tested and found of good quality and quantity at intervals of a month before the operation. Post mortem showed nothing beyond congestion.

The writer goes on to give the grounds for assuming a reflex vasomotor paralysis and consequent passive congestion as the cause of the renal suppression. The effect of posture of the patient is emphasized, and the probable ill effects from pressure on the kidney of the side opposite to that one operated on are noted; and the use of a double inclined plane with an interval opposite the kidney, which removes all pressure from it, is urged. Such a contrivance is illustrated in the article.

CONSERVATIVE OPERATIONS FOR RENAL RETENTION.

Christian Fenger[2] contributes a valuable contribution to the surgery of the ureter and of some of its most modern developments. It introduces some operations that will be new to the general surgeon and medical practitioner and, unhappily, some new and rather tortured nomenclature, to describe them.

Obstructions of the ureter and the choice of methods for their relief are discussed and illustrated by the reports of cases; cases of retention from calculus, and its removal by movable kidney and nephropexy, nephrotomy and drainage, and drainage by ureteral catheter from below, are omitted from consideration. The following cases are reported:

(1) Obstruction located in the kidney; namely, in the calyces or one branch of the ureter; partial cystonephrosis. This operation consists in the bisection of the kidney and division of the partition walls between the sacs and the pelvis, thus making a unilocular.

(2) Obstruction situated at the exit of the ureter from the renal pelvis. The condition found causing obstruction in cases of this kind has been a valve formation without stricture, due to unilateral dilatation of the pelvis and consequent oblique insertion of the ureter on the side of the dilated pelvis rather than at its lowest point, or else stricture of the ureter at its exit, with insertion at the lowest part of the pelvis or on the side higher up. The operations which have been applied to these conditions are to attack the obstruction through the pelvis or bisected kidney in case of the valve-like formation — transpelvic operation; or from without — extrapelvic operation. Finally, the distorted shape of the pelvis has been made the operation — "pyeloplication" and "capitonnage." These operations are described briefly. The two terms above quoted are spoken of as follows: "Pyeloplication,"— plastic operation on the renal pelvis (Israel) ("pelvioplication Albarran"). In lateral implantation, when the ureteral orifice is of normal caliber, the passage of urine would be free were the ureter inserted at the lowest part of the pelvis, or if the normal shape of the pelvis were re-established, which has been accomplished by the following operations on the pelvis: (a) Shortening the excess of the pelvic wall by folding it toward the lumen of the pelvis and uniting the folds by sutures; (b) excision of part of the wall of dilated pelvis and closure by sutures ("capitonnage Albarran").

(3) A case of obstruction below the renal pelvis relieved by an operation, to which the name "uretero-lysorthosis" is given.

The article ends with a series of conclusions, which include (1) the choice of operation; (2) the danger to life; (3) the effect of operation; and with a table of the operations done up to the present time.

A NEW METHOD TO EXPOSE THE SEMINAL VESICLES AND PROSTATE, FOR PURPOSES OF EXTIRPATION AND DRAINAGE (A PRELIMINARY REPORT).

Eugene Fuller,[3] M.D., New York, points out the defects and inadequacy of the hitherto employed methods of approach to the prostate and

[1] Annals of Surgery, March, 1901, p. 225.
[2] Chicago Annals of Surgery, April, 1901, p. 369.
[3] The Journal of the American Medical Association, May 4, 1901, p. 1228.

seminal vesicles for the purpose of radical operations upon them, and then goes on to describe his own plan of procedure, which is as follows: To render the parts easy of access and less movable during dissection than they are in other postures, the patient is placed as follows: The legs are flexed as for lithotomy, the body turned over on its face, the buttocks raised on one end of a Trendelenburg table with the thighs astride of the elevated part. This puts the perineal tissues on the stretch and affords the firmest and widest surface of them on which to operate. The bladder is emptied just prior to operation, but no catheter is left in during the succeeding steps. The rectum is filled by a tampon passed high up into it, in order to prevent its contents from reaching the field of operation. The incision is now made thus: As the surgeon is seated the patient's buttocks raised as described are directly opposite him; the incision consists of two somewhat oblique incisions, one on either side of the perineum, beginning on a level with the tip of the coccyx; and just inside the ischium the two lateral branches are carried forward longitudinally through the perineum, and are united by a transverse cut at their other ends, about three-quarters of an inch beyond the anterior margin of the anus. The longitudinal branches are extended into the deep tissues, and then the tranverse one also. The flap so formed is turned back, and the deep dissection completed through the space thus gained.

RESECTION OF THE EPIDIDYMIS AND ANASTOMOSIS OF THE DIVIDED TISSUES.

Scaduto[4] discusses the possibility of restoring the function of a testis in cases where it has been interfered with by disease or necessary operation. The work is based upon 14 operations, performed upon dogs, and the author was successful enough, in one case at least, to feel that further experimentation should be conducted on similar lines. His method was to make the resection and anastomosis, the technique of which he describes with some care, and then after several weeks to remove the testis and cord, inject the latter with hot, colored gelatine, and harden in alcohol. He then made microscopic sections to determine the patency of his operated area and its neighborhood.

TREATMENT OF TUBERCULAR EPIDIDYMITIS BY LIGATURE OF THE VAS DEFERENS.

Mauclaire[5] reports 18 observations upon the results of the treatment of tubercular epididymo-orchitis by ligature and section of the spermatic cord, and concludes: (1) Good results may be obtained when the tubercular area is not fistulous or suppurating; (2) in the suppurating cases the results are not good, because the process continued (in his cases) and invaded the tunica and other neighboring tissues.

A NEW METHOD OF PERFORMING PERINEAL PROSTATECTOMY.

P. J. Freyer[6] recommends the old Dittel incision with a preliminary perineal incision into the urethra as a substitute for the suprapubic cystotomy of Nicoll. That is to say, he removes the prostate by the perineal route through the Dittel incision; but instead of doing a preliminary suprapubic cystotomy, as Nicoll does in his operation, Freyer makes a preliminary perineal opening into the urethra and claims the following advantages in so doing:

(1) The preliminary urethrotomy permits the introduction of the finger into the bladder, which, with another finger in the rectum, enables the surgeon to define accurately the size, shape, density and extent of the growth without the performance of a suprapubic cystotomy.

(2) The finger can be hooked over the enlarged lateral lobe, and the latter pushed well into the ischiorectal wound, thus obviating the deep and dangerous dissection of Dittel.

(3) With the tumor pushed into the wound the capsule is easily incised, and the cutting forceps and scissors easily applied.

(4) The finger in the bladder warns the surgeon when the cutting instrument is approaching dangerously near that organ, so that the whole growth can be removed, except a thin layer for the support of the mucous membrane of the bladder and prostatic urethra, without opening the latter, thus avoiding infection of the wound and formation of a permanent fistula.

(5) The perineal drainage tube inserted into the urethral opening carries off the urine and prevents sepsis of the perineal wound.

AN IMPROVED METHOD FOR PERFORMING SUPRAPUBIC CYSTOTOMY.

C. L. Gibson[7] affirms that the improvement consists in adapting to the bladder the principle which underlies the so-called Kader operation for permanent gastric fistula. The writer hopes that the procedure will accomplish three things: (1) Effective bladder drainage without leakage; (2) rapid closure of the fistula when the drainage is discontinued; (3) the creation of a permanent sinus if desired, which should allow of permanent but periodical catheterization of the bladder, and in the intervals, owing to its valve action, prevent the escape of urine, and do away with the discomforts of wearing a tube or dressing.

THE URETERAL CATHETER A DEMEURE IN PREVENTIVE AND CURATIVE TREATMENT OF RENAL FISTULÆ.

Albarran's interesting paper was read at the Thirteenth International Medical Congress in Paris last summer, and is summarized in the *Annales des Maladies des Organes Genito-Urinaires*, 1900, page 799. The author describes how renal fistulæ which have refused to heal because of a more or less impermeable ureter can be made to heal by proper drainage through a ureteral catheter. He reports cures of two such cases in from fifteen to twenty days. He believes that such fistulæ may often be prevented by a similar use of the ureteral catheter at the time of operation.

[4] Am. des mal. des Organes genito-urinaires, March, 1901.
[5] Thirteen Congrès. Internat. de Med., Paris, 1900.
[6] British Medical Journal, 1900, p. 698.
[7] Journal Cutaneous and Genito-Urinary Diseases, March, 1901.

DETERMINATION OF THE CONGEALING POINT OF THE BLOOD AND URINE IN ORDER TO ASCERTAIN THE FUNCTIONAL ACTIVITY OF THE KIDNEYS.

Kummel,[8] Von Korányi and others have demonstrated the fact that the congealing point of the blood in a physiological condition remains at about —56° C. The moment the kidneys cease to functionate properly the congealing point goes below —56° C. In all cases (tumors, pyelitis, pyonephrosis, tubercular kidneys, nephritis of various sorts, etc.) which the writer examined or operated, this proved true. The congealing point of urine may be made useful in a similar way, and the urine from each kidney may be tested separately in any case where one kidney is diseased and the other possibly not affected.

RADICAL TREATMENT FOR CURVATURE OF THE PENIS.

Fuller[9] describes an interesting operation for the cure of curvature of the penis (on erection), which exceptionally follows internal urethrotomy to such a degree as to prevent sexual intercourse. The operation consists in making a very long median perineal incision, and through it dividing the urethra in the bulbous region very obliquely and in such a manner that when the penis is bent back over the pubes a maximum amount of separation of the cut urethral ends is obtained. The penile cut end is then stitched in place to the surrounding tissues. The bladder end needs no fixation. A perineal drainage tube is tied in place for some time. In Fuller's case the result was good two years after the operation.

RARE AND INTERESTING CASES.

(1) A case of complete anuria of seven days' duration with no symptoms of uremia.[10]

(2) A case of complete retention of urine and *rupture* of the urethra in a case of gonorrhea without organic stricture of the urethra.[11]

(3) Another of the rare cases of torsion of the spermatic cord.[12] Diagnosis was verified by operation.

TWO NEW CYSTOSCOPIC INSTRUMENTS.[13]

(1) A modification of the original Nitze cystoscopic lithotrite and foreign body forceps. The instrument consists of a cystoscope, lying in and freely movable in the forceps. In the Nitze instrument the movable jaw moved toward the prism and so obstructed the field of vision. In this instrument the posterior jaw is fixed and fenestrated, and the anterior jaw is the movable one. This improvement leaves the visual field comparatively unobstructed.

(2) A cystoscopic foreign-body forceps. The cystoscope lies in a tubular canal on the posterior surface of the instrument, and is freely movable in it, though its mobility can be controlled by a screw. The forceps open laterally, leaving the field of vision clear.

[8] Ann. des Mal. des Organes Genito-Urinaires, 1900, p. 795.
[9] Annals of Surgery, June, 1900.
[10] Louis Renon: Soc. Méd. des Hopitaux, February 2 and 9, 1900.
[11] Danlos: Soc. Méd. des Hopitaux, February 2 and 9, 1900.
[12] G. Nanu: Rev. de Chir., September, 1900.
[13] Frederic Bierhoff: Journal Cutaneous and Genito-Urinary Diseases, March, 1901.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

REGULAR meeting, Wednesday, February 6, 1901, DR. J. C. MUNRO in the chair.

DR. J. B. BLAKE showed a case of

SARCOMA OF THE HUMERUS AND SCAPULA.

This patient came to the City Hospital in December, 1897. At that time she was thirty-one years of age, and the history briefly was that of a fall on the *right* side, a year previously, and pain and disability of the *left* shoulder. This was followed by increasing limitation of motion, and within a week or two before entrance she found for the first time a small tumor occupying the position of the coracoid process. She was in good general condition, the arm limited very considerably in its motion, and presented near the tip of the left coracoid process a tumor not distinctly fluctuating, and distinctly not pulsating. Diagnosis was reserved, but sarcoma was considered probable.

Operation.— A curved incision was made, and separating the pectoralis major and the deltoid a rounded tumor was found occupying the entire end of the coracoid process; that is to say, the pectoralis minor and coracobrachialis went directly into it. The brachial plexus and axillary artery were laid bare, and at that time the tumor began to break under the fingers and to bleed very profusely. Clinically it had all the aspects of a sarcoma of very hemorrhagic type. It broke away like a rotten sponge. It bled so rapidly that at one time it was feared that we might lose the patient from hemorrhage. The tumor, including the tip of the coracoid, head of the humerus and part of the glenoid cavity, was removed and a mass of sharp spicules of bone was left. So far as I could see the tumor mass was entirely removed and the place occupied by it was packed firmly with gauze. The patient was taken off the table in fair condition.

About two weeks after that the Coley treatment was started, commencing with a half-minim dose, increasing gradually, and continued while she remained in the hospital. She went out in July, the wound being practically healed, except a small sinus.

She came back to the Surgical Out-patient Department several times until December, 1898. She is now in a household of five, in which she is the only servant. The motions of the arm are entirely free, except extension upward, which is slightly limited.

Six months after the original operation Dr. Cushing dissected out two or three small glands just above the clavicle. Pathological examination showed them to be chronic inflammatory. The pathological report signed by Dr. Mallory and Dr. Bottomly showed the original tumor to be giant cell sarcoma.

During the operation, in the hurry of the dissection I nicked the musculo-cutaneous nerve. She never had any symptoms following it. There are no glands in the axilla. Her general health is about as good as when she entered the hospital.

DR. A. T. CABOT read a paper entitled

SOME FORMS OF INTESTINAL OBSTRUCTION DUE TO ADHESIONS.[1]

DR. MUMFORD: In his very suggestive paper Dr. Cabot has illuminated one corner of a wide field most important to all surgeons operating inside the abdomen. That a great number of obscure symptoms — pain, dragging, tenderness, constipation, dyspepsia, renal incompetence, etc.— are not infrequently due to adhesions, the result of inflammatory processes in or around the various abdominal viscera, is undoubted. The phenomena grouped under the general term "enteroptosis" play an important part.

Some years ago I reported a case of "stercoral ulcer," a process which I then thought, and still think, to be in a greater or less degree more common than is generally supposed. Long-standing fecal accumulations with resulting erosion, localized necrosis and adhesive peritoneal inflammation, such as I described in the above-cited case, are the undoubted forerunners of adhesions. The stomach, gall bladder, bladder, uterine annexa and other hollow viscuses may be the seat of these processes, as well as the intestinal tract; giving rise, in their appropriate locations, to such adhesions as Dr. Cabot has described; and in many cases, of course, with the subsidence of the primary process, no gross evidence remains to indicate its seat.

With advancing age, numerous pregnancies and great loss of flesh, such inflammatory adhesions may aid in establishing and rendering permanent those conditions of enteroptosis with which we are familiar. The two conditions may then act and react upon each other *ad infinitum*.

As to the two examples of intestinal adhesions which Dr. Cabot has described, I confess that they, in their immediate and serious sequelæ, had not forcibly occurred to me before. Perhaps the most common seat of adhesions within the abdomen is about the caput coli, causing most frequently, doubtless, a gluing down of the coils of the ileum. But just how this might cause a constipation, or even an obstipation, had never occurred to me until I saw Dr. Cabot's instructive diagram. I remember being present at the first operation on the patient whose case he described, and it seemed to me then that the matting down of the ileum was quite enough to cause serious pain and disturbance. The long course of the disease in that case rendered most plausible Dr. Cabot's supposition that the appendix had been destroyed by natural processes.

As for the interesting sigmoid cases mentioned by Dr. Cabot, I have no personal experience of their like; but after his instructive statements I have no doubt that I shall suspect and discover them in my future work.

[1] See page 635 of the Journal.

Undoubtedly freeing of the adhesions is all that we are justified in doing, and in most cases that is sufficient. Sometimes denuded surfaces may be turned in with a few Lembert stitches. This is rarely necessary; and we must suppose, in view of the subsequent history of these cases, either that no new adhesions form, or that if formed they are so placed as not to impair function.

Dr. Cabot's cases are certainly an interesting and important contribution to our knowledge of this subject.

DR. LUND: I was very much interested in the picture. I did not hear the description of it, as I came in late. I have operated for obstinate constipation following operation for removal of the appendix, in which the small bowel was found drawn across the front of the cecum and adherent to the under side of the abdominal wall, so that the patient said the scar drew in when the bowels moved. There were one or two broad adhesions and two bands leading upward. Those were separated; and where the broad adhesions were separated I took one or two catgut ligatures to close the surfaces. Soon after the operation she went to Ireland. She was entirely relieved of her pain.

DR. GARCEAU: I have had one case exactly like the ones Dr. Cabot has described. It occurred in a young girl in whom I suspected tubercular peritonitis. I operated and found the abdomen full of adhesions, and this condition was found. The adhesions were so general that I can very readily understand how they could travel across the abdomen and fix the sigmoid flexure in the way that Dr. Cabot has described.

DR. MUNRO: This seems to me one of the most important subjects we have had brought out for a good while. I have been in the position a number of times of having a family doctor protest against operation for adhesions, on the basis that they would be just as bad after operation as before. It is a comfort to hear that it is not so, and to have Dr. Cabot's experience as a basis. Not long ago one of our orderlies at the hospital came with a story of repeated mild attacks such as Dr. Cabot has described. At operation we found that the appendix itself had atrophied to a longitudinal band, except for one-fourth of an inch at the base; there were adhesions which were broken up; and now, after some months, there has been no return of the old trouble. I never have seen the adhesions of the sigmoid described by Dr. Cabot, but I can easily believe it would cause consternation in the abdomen.

DR. CABOT said that in trying to limit the discussion to these particular points he had left out a great deal that could be said about abdominal adhesions. One of the most interesting and curious facts is the way adhesions disappear. During an operation for some intra-abdominal condition everything may be found matted together, and by an operation on the same patient later it will be found that there are almost no adhesions left. At other times the adhesions persist in certain localities, as we have seen, and sometimes cause much trouble. Of adhesions about the stomach

much might be said. The stomach is an organ that is constantly filling and emptying, altering its size and weight more than any other part of the intestinal tract. Close by we have the transverse colon, which is again a part of the intestine which constantly alters its size and is often filled with heavy contents. Inflammations are common in this upper part of the abdomen, originating in the gall bladder, the biliary ducts, or more rarely in the stomach or duodenum. As a result of such inflammation these heavy viscera, the stomach and transverse colon, are apt to become adherent to the gall bladder and the under surface of the liver, and to constantly pull on these very sensitive parts. If these adhesions cause a stoppage of the biliary ducts, or confine the pylorus or duodenum so as to interfere with the passage of ingesta, we may have symptoms distinctive of such obstruction. In many cases, however, where no such mechanical obstruction is brought about, the constant drag on the under surface of the liver and the delicate parts thereabouts keeps the patient in uneasy consciousness of discomfort in the epigastrium. Such a condition in a neurasthenic patient is favorable to the production of stomach crises, manifesting themselves either by pain or vomiting, or both.

Dr. Munro: I would briefly report a case, although Dr. Blake really knows more about it than I do. A young undertaker, thirty-three years of age, came to the hospital in 1897. At that time he had a mass of glands in both triangles of the neck down to the clavicle, starting under the second or third rib about two years before and steadily increasing upwards. He came in for operation for pressure against the trachea, and I removed the glands down to the clavicle; but below that it was useless to go, as the sheath of the vessels was involved and the growth extended downwards indefinitely. A violent staphylococcus infection followed operation, but he left the hospital in the course of a few weeks, relieved. After that there was recurrence, and his mother or grandmother rubbed on goose oil or some family remedy, with relief temporarily. He then went to the Massachusettts General Hospital, but the growth was so far advanced that all the surgeons who examined him refused to operate. He then adopted his own remedy,—rum, and since 1898 he has been practically full of rum all the time. Within the last month he came to the hospital with what we call an "edge" on, but the tumors had practically disappeared. Meanwhile Dr. Blake, I think, has dissected out the axillæ, which were occupied by sarcoma.

Dr. Blake: I met this patient on the street, and he had on a No. 18 collar and looked as if he had stuffed his shirt with something. That was just before his mother recommended goose oil or St. Jacob's oil. The next time I saw him he was wearing a No. 15½ collar. In the spring of last year I dissected out the axillary glands. They ran well back under the lassissimus dorsi. When he came back he had one small gland in the middle of the axilla and one or two small ones near the inner part of the left clavicle. While treated in the out-patient department he had an eruption which for a time suggested syphilis. Dr. Dwight looked him over carefully, but could not be satisfied he ever had syphilitic infection. He looks to me about as well as two years ago.

Dr. Munro: I had an apparent cure from erysipelas in a Russian Jew, fourteen years old, who entered the medical side with universal lymphosarcoma. One evening he began to choke up and was transferred to the surgical service at once. I expected to find a deep cervical abscess, but instead found soft broken-down glands without pus, very much swollen, and evidently in the beginning of a streptococcus infection, because almost at once a severe erysipelas developed and his universal lymphosarcoma disappeared. He went out apparently well, but in a few months came back with a recurrence and died.

Dr. Cabot said that in the cases reported were three different kinds of sarcoma, which had very different tendencies to recurrence. The last case was probably lymphosarcoma, and he recalled one case in which an enormous lymphosarcoma in the neck of a small boy disappeared under the use of stimulants with good food. He had known of other cases in which lymphosarcomata had disappeared, apparently as the result of the exhibition of arsenic.

In Dr. Blake's case the tumor was a giant-cell sarcoma, which is a variety unlikely to recur after a thorough removal. It is not possible, therefore, to regard this case as furnishing any evidence of the efficiency of the streptococcus serum.

Among the sarcomata we have tumors of very widely different characteristics. Some of them are most malignant, and some have but little malignancy. We need to know more about the classification of sarcomas before we can draw conclusions from their behavior with this or that method of treatment.

Dr. Blake: The patient with the sarcoma of the neck went to New York and saw Dr. Coley, who said while he could promise him nothing, he was willing to treat him. The man, however, had not the requisite means, and returned without treatment.

I recall a case of what I supposed to be a wen, of thirty years' standing, removed in the surgical out-patient department from the head of an old woman, which the pathologist reported to be sarcoma.

Dr. Painter: I recall the case of a homeopathic physician from a neighboring city who was advised to try the hot-air treatment for a large tumor of the thigh, and came to consult us for that purpose. Clinically it was strikingly suggestive of malignant tumor of the thigh; a typical spindle-shaped growth, which occupied the upper third of the thigh in a very large man, who did not show any particular cachexia; but the "feel" and the appearance of it, together with the history of its development and the absence of

any specific history, which was carefully searched for, suggested pretty definitely the diagnosis of sarcoma, and we advised that he have an x-ray; and as this showed the thickening we expected to see from the clinical appearances, we advised him to consult a surgeon and ascertain what was best to be done. He went to an eminent surgeon, who advised amputation at the hip joint. He said if that must be done he would go to his own school. He went to the Homeopathic Hospital and received the same advice. An exploratory operation was performed and a piece of tissue removed. Their pathologist was not prepared to express an opinion on it. A piece of this tissue was sent to the Harvard Medical School, and there the pathologist would not definitely commit himself. He asked for more of the growth. A second exploratory operation was performed, and a specimen more nearly the center of the tumor was obtained, and then both pathologists thought it was probably osteomyelitis. After a time the tumor entirely disappeared and has not recurred. This was about three years ago.

Another case that interested me a good deal, from the fact that I have heard from Dr. Coley in regard to it, is that of a young man of about eighteen, sent from the out-patient of the Massachusetts clinic to the orthopedic clinic at the Carney with diagnosis of hip-joint disease, in which we agreed, believing it was probably the acetabular type. He had no shortening; limitation of motion on abduction and extreme flexion of the limb and considerable pain, and a history extending over seven or eight months, more or less intermittent as regards the limp and pain. He had in addition to this a tumor in the left iliac region, just above Poupart's, which we supposed was an abscess coming from the acetabulum. I cut down upon that tumor, expecting to come into a pus pocket, but instead I got into a sort of currant-jelly mass which was very vascular. I put my finger in and came up against the side of the ileum, and could push through the ileum with perfect ease. It proved on examination to be round-cell sarcoma; and while he was convalescing from the operation the tumor increased in size to such an extent it was decided to send him to Coley for treatment. A few days ago I received a note saying he had commenced treatment, but that osteosarcomas in his experience were not the most suitable cases for that treatment.

DR. GARCEAU: I have had a similar case. I sent to Dr. Coley a woman about forty years of age, with osteosarcoma of the arm. She was treated about two months, came back and had the arm amputated at the hospital. The treatment did absolutely no good at all.

MEDICAL DEGREES AT HARVARD UNIVERSITY. —At the annual commencement at Harvard University, held June 26th, 116 candidates received the degree of Doctor of Medicine; of these, about thirty were graduated *cum laude*.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4–7, 1901.

GENERAL SESSIONS.

FIRST DAY.

THE association met in the Metropolitan Opera House, and was called to order at 10.20 A.M. by the chairman of the Committee of Arrangements, DR. JOHN F. FULTON of St. Paul. Prayer was offered by BISHOP H. B. WHIPPLE, after which Dr. Fulton introduced the HON. R. A. SMITH, Mayor of St. Paul, who delivered an address of welcome. Following the address came the introduction of the president of the association, DR. CHARLES A. L. REED of Cincinnati. On taking the chair he invited the vice-presidents and all ex-presidents of the association who were present to take seats upon the platform.

DR. PHILIP MARVEL of Atlantic City, third vice-president, took the chair, and PRESIDENT REED delivered his address.

PRESIDENT'S ADDRESS.

He referred feelingly to three of his illustrious predecessors who had been called from their worldly activities to the realms of rewards. Alfred Stille, Lewis A. Sayre and Hunter McGuire, each a former president of the association, died within a single week. Their lives were known of men, their records are ornaments of medical history, and their achievements are their eulogies.

The foreign relations of the American Medical Association were next touched upon briefly.

He passed on and considered the fiscal affairs and the *Journal*, stating that from the joint report of the treasurer and of the Board of Trustees there was a cash balance at the end of the last fiscal year of $31,004.67, being an excess of $3,696.66. He believes that the present generous policy in promoting the welfare of the *Journal* should be continued; that the dues of the association should not be decreased; and that the question of establishing and defraying the expenses of certain commissions for special scientific investigators should be taken under serious consideration. The question of tuberculosis is not yet a closed chapter. The causation of cancer is yet a sealed mystery. The problems of tenement-house reform are not yet solved. The prevention of various endemic diseases has not yet been made practicable. These are a few among the many objects of a specific character which demand and should receive the fostering care of the association.

The era of effective legislative control of medical practice came as the natural reaction from the demonstrated failure to accomplish the same result through voluntary organization, but it came as the result of the sentiment which had been propagated largely through the influence of the association.

Touching the reorganization of the association, President Reed stated that great results can be achieved only by the unification of a national profession. These could not be attained under the present organization of the association. The disproportionately rapid growth of the *Journal* as compared with that of the association could have no other significance. The weakness of the Committee on Legislation at Washington was a question neither of personnel nor of industry, but arose purely from the fact that there was no efficient organization in the rank and file of the profession by which speedy and effective influence could be brought to bear upon members and senators. The demand for more effective organization of the association had come from all over the country, and resulted in the adoption of a motion at Atlantic City authorizing the appointment of a committee of three to report a plan of reorganization at this session. Another motion was adopted authorizing the creation of a supplementary committee of one from each state and territory, entitled a Committee on Reorganization, which has been filled by appointing for the most part the retiring presidents of state societies for the current year. The Committee on Reorganization had given to the important question entrusted to it a most careful and painstaking consideration. It had laid before the association the results of its deliberations. In doing so it had emphasized the principle that this association had its origin in the organized profession of the respective states. It emphasized the fact that the delegate body should be so small that it can remain in prolonged session and give to various subjects under consideration that deliberate attention which has not been possible under the existing scheme of organization during the past forty years. It recognizes the paramount importance of the scientific feature of work by relieving the general meetings and the sections alike of the troublesome details that now consume the limited and valuable time of the sessions. It remedies the glaring and serious defects in the present constitution. It prepares the association, by perfecting the organization, to meet important and pressing questions. These considerations, together with the fact that the existing constitutional provision relative to delay of action on pending amendments has been met by the appointment a year ago of a committee for the avowed and published purpose of reorganization, and by the action of the committee in laying the results of its work before every member of the association — these considerations prompted him to advise the adoption of the proposed Constitution and By-Laws in their entirety at the present annual session of the association.

The changes which the speaker had advocated are essential for the attainment of the purposes of the association and for the fulfillment of the high destiny of the national profession. They are demanded by the changes that have taken place during the past fifty years. The legislative functions have passed from voluntary organizations to the congress and the legislatures where they belong; but it still devolves upon the profession in the organized capacity to stimulate, to restrain or otherwise to control the law-making power. The responsibility of the profession is increased rather than diminished. Science has come to have a clearer meaning. He who now proclaims a dogma cries alone in the night while the world sleeps. They who demand a creed may read its varying terms only in the progressive revelation of natural laws. Practice has changed. The depletions, the gross medications, the absurd attenuations, the ridiculous anti-mineralism have given way to a refined pharmacy and to a more rational therapy. Education implies research and discovery, and all may delve.

President Reed's peroration was as follows: "I proclaim, events proclaim the existence of a new school of medicine. It is as distinct from the schools of fifty years ago as is the Christian dispensation from its pagan antecedents. It is the product of convergent influences, of diverse antecedent origin. It acknowledges no distinctive title; it heralds no shibboleth. It is a school of human tolerance, of personal independence, of scientific honesty. It is the slave of neither prejudice nor preconception, and abandons the accepted truth of yesterday, if it only be the demonstrated error of today. It places no premium upon personal prerogatives, and extends no recognition to individual authority. It makes no proclamation of completeness, no pretention to sufficiency. It recognizes that truth is undergoing progressive revelation, not ending today, but continuing through the ages. It yields its plaudits to achievement, and recognizes that he is the greatest among men who reveals the most of truth unto men. It greets as a friend him who thinks, though he think error; for, thinking, he may think truth and thereby add to the common fund. It heeds all things, examines all things, judges all things.

"To you, the exponents of this new school, of this new generation, of this new century; to you, representatives of the democracy of science; to you, citizens of the republic of letters, I extend greetings; and here, in our parliament assembled; here, where our will is supreme, I this day invoke upon our deliberations the spirit of liberty, the spirit of courage, the spirit of progress, the spirit of truth."

The president's address was referred to the Executive Committee with instructions to report back to the association on its recommendations.

DR. J. R. PENNINGTON of Chicago made a brief speech, during which he presented and unveiled the portrait of Dr. N. S. Davis of Chicago, the veteran of the association and founder, amid a storm of applause. The portrait of Dr. Davis was accepted by the association, and thanks extended to Dr. Pennington for his presentation.

The secretary, DR. SIMMONS, read his annual report, in which he referred to the continued increase in membership and the prosperity of the association. The membership at the present time is something over 10,600, which shows an increase

over last year of between 1,500 and 1,600. The report was referred to the General Executive Committee.

DR. BULKLEY of New York read the report of the General Executive Committee, in which it was recommended that hereafter no titles of papers be printed in the program unless the required abstract is furnished and printed in connection with the same.

The next order was the joint report of the treasurer and the Board of Trustees, which was read by DR. T. J. HAPPEL of Tennessee. The report showed as profits for 1900, $13,344.91. The report was adopted as read.

The report of the Committee on National Legislation was read by DR. H. L. E. JOHNSON, chairman, which dealt with matters of interest to the profession. The report was a very lengthy one, and was referred to the General Executive Committee.

The report of the Committee on Reorganization was read by DR. J. N. MCCORMACK of Kentucky, and at its conclusion, on motion of DR. HARRIS of New York, the report was referred to a joint committee composed of the General Executive Committee and the enlarged Committee on Reorganization, with instructions to report the following morning.

SECOND DAY.

The association met at 11 A.M., with PRESIDENT REED in the chair. His Excellency, S. R. VAN SANT, Governor of Minnesota, was introduced, and welcomed the association on behalf of the State.

The joint committee, consisting of the General Executive Committee and the Committee on Reorganization, upon the report of the Committee on Reorganization, made its report, it being read by the chairman of the joint committee, DR. H. O. WALKER of Michigan.

The most important features of this report are the following:

This association shall consist of delegates, permanent members, members by invitation, honorary members and associate members. Permanent members shall consist of such members of the state societies, together with their affiliated local societies, entitled to representation in this association as shall make application for admission in writing to the treasurer, and accompany said application with a certificate of good standing signed by the president and secretary of the society of which they are members, and the annual fee. Members by invitation shall consist of distinguished physicians of foreign countries who may be invited by the officers of sections or of the association. They shall hold their connection with this association until the close of the annual session to which they are invited, and shall be entitled to participate in all of its affairs, as in the case of permanent members, but they shall not be assessed the annual dues. Honorary members shall be physicians of foreign countries who have risen to pre-eminence in the profession of medicine. Representative teachers and students of the allied sciences, not physicians, may become associate members by the vote of the House of Delegates.

The House of Delegates of the American Medical Association shall consist of (1) delegates elected by permanently organized state and territorial medical societies in affiliation with this association; (2) two delegates elected by each of the component sections of this association; (3) one delegate each from the medical departments of the U. S. Army and U. S. Navy, and one from the U. S. Marine Hospital service.

The total membership of the House of Delegates shall not exceed 150, and the delegates representing the State societies shall be apportioned among the several affiliated state and territorial medical organizations in direct ratio to their true membership.

The House of Delegates shall have authority to provide for and create such branch organizations as may be deemed essential to the promotion of the welfare of the medical profession.

The regular meetings of the association shall be held annually. The place of meeting shall be determined, with the time of meeting for each next successive year, by vote of the House of Delegates.

The officers of this association shall be a president, four vice-presidents, a secretary, a treasurer and nine trustees.

The officers of this association shall be elected by the House of Delegates. Each officer, with the exception of the secretary and the Board of Trustees, shall hold office for one year or until his successor is elected and installed. Three trustees shall be elected annually by the House of Delegates for a term of three years.

No member of the House of Delegates shall be eligible to any of the offices mentioned in the foregoing sections of this article.

The General Session shall have the right to discuss questions referred to it by the House of Delegates, and it may, by a two-thirds vote, order a general referendum on any question pending before the House of Delegates.

The House of Delegates shall, upon a two-thirds vote of its own members, or upon a two-thirds vote of the General Session, submit any question either through the *Journal* or by mail, to the general membership or final vote; and if the persons voting shall comprise a majority of the members, the majority of such votes cast shall determine the question, and shall be binding upon the House of Delegates.

The House of Delegates shall have authority to amend any article of this constitution by a three-fourths vote of all the members composing the House of Delegates; provided, that such amendment shall have been proposed in open meeting of the House of Delegates one year previous to being acted upon, shall have been published at least three times in the *Journal* during the interim, and shall have been officially transmitted to each affiliated state and territorial society for consideration at their annual meetings.

The General Session shall include all registered members and delegates, who shall have equal rights to participate in discussions and to vote upon pending questions. Each General Session shall be presided over by the president, or, in his absence or disability, by one of the vice-presidents. Before it there shall be delivered upon the opening day of each annual meeting the address of the president, whose recommendations shall thereupon go to the House of Delegates for action, and on each following session such addresses on scientific subjects as are assigned to orators selected for the purpose. It shall have power to create committees or commissions for scientific work of special interest or importance, and to receive reports of the same; provided, that any expense incurred in connection therewith by the association must first be authorized by concurrent action of the House of Delegates and the Board of Trustees.

The House of Delegates, as far as may be consistent with the articles of incorporation, shall be the legislative and fiscal body of the association. Its sessions shall be open to the members of the association; but except upon invitation of the House of Delegates, they shall have no right to participate in its proceedings. Each state and territorial society entitled to representation shall have the privilege of sending to the association one delegate for every 500 of its resident regular members, and one for any additional fraction of that number; but each affiliated state and territorial society shall be entitled to at least one delegate.

The House of Delegates once in every three years shall appoint a committee of five on reapportionment, of which the president and secretary shall be members. It shall be the duty of this committee to examine the membership lists of all the affiliated state and territorial medical societies, and to determine therefrom the number of delegates to the association to which each state or territory shall be entitled for the ensuing three years, beginning with the annual meeting next succeeding that at which the reapportionment is approved by the House of Delegates.

Members of the House of Delegates shall be elected for a term of two years, and those state and territorial societies entitled to more than one representative are requested to so arrange such election that one-half of their delegates, as near as may be, shall be elected each year.

In order that each state and territorial medical society may properly provide for a full delegate representation at each meeting of the association, it shall have the authority to elect alternates, who, upon presentation of the proper credentials, shall be empowered to serve as delegates in the absence of the regularly elected delegates. Provided, that in case of the absence of the regularly appointed delegate or alternate, then the permanent members from that affiliated society, who are present at that meeting, shall select one of their number, who shall represent that society; and provided further, that when only one permanent member is present from any society, that member shall represent that society.

No one shall serve as a member of the House of Delegates who has not been a permanent member of the American Medical Association for at least two years.

Every delegate from a state or territorial society, before being permitted to take part in the proceedings of the House of Delegates, must deposit with the secretary or other designated officer or committee, a certificate signed by the president and secretary of the state society from which he receives his authority, stating that he has been regularly and legally elected a delegate to the American Medical Association for a definitely stated term, and the delegates from the sections shall present credentials signed by the president and secretary of the section they represent. This certificate shall be subject to review by the Judicial Council, and all disputes as to credentials shall be investigated by the Judicial Council, and determined by vote of the House of Delegates.

The House of Delegates shall approve all memorials and resolutions, of whatever character, issued in the name of the American Medical Association before the same shall become effective.

The House of Delegates shall present a summary of its proceedings to the last general session of each annual meeting of the association, or it shall publish the same in a bulletin to be issued each day during the annual meeting.

A majority of the members composing the House of Delegates shall constitute a quorum for the transaction of business. All elections shall be by ballot. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the annual meeting. Only those in attendance at the annual meeting at which the election occurs shall be eligible for election. The officers elected at each annual meeting of the association shall be installed at the closing general session.

The Judicial Council shall be composed of nine members, three of whom shall be chosen annually by the House of Delegates, and shall serve for three years. All questions of a personal character, including complaints, protests and credentials, shall be referred at once, after the report of the Committee of Arrangements or other presentation, to the Judicial Council without discussion. The said council shall organize by choosing a president and secretary, shall keep a permanent record of its proceedings, and shall report its findings to the House of Delegates at the earliest practicable moment.

The Commitee on Medical Legislation shall consist of one delegate from each state, to be appointed annually by the president of the association. It shall be the duty of this committee to represent before Congress and elsewhere the wishes of this association in regard to pending medical and sanitary legislation. It shall be the duty of this committee to consider and act upon all proposed national, state or local legislation that in any respect bears upon the promotion and preservation of the public health, or upon the material or moral welfare of the medical profession. It shall have power to fill any vacancies that may occur in its membership, and to act *ad interim* when necessity arises.

The Committee on Legislation shall report to the House of Delegates at each annual meeting its action during the previous year, and shall recommend such action regarding pending legislation as it shall deem proper.

The Committee on Nominations shall consist of nine members, not more than one from one state or territory, selected annually by the House of Delegates. It shall be the duty of this committee, after consultations with the members of the association, to hold one or more meetings, at which the assignment of the offices of the association for each ensuing year shall be carefully considered. The committee shall then on the morning of the third day of the annual meeting report the result of its deliberations to the House of Delegates in the shape of a ticket, providing one, two or three names for each office; but not more than one candidate for each office shall be named from any one state or territory. Nothing in this section shall be construed to prevent additional nominations being made by the members of the House of Delegates.

The general sessions of the American Medical Association shall be held at 11 A.M. and 7.30 P.M. of the first day of the annual meeting, at 7.30 P.M. of the two subsequent days, and at 12 noon of the concluding day.

The various sections of the association shall hold their first session of each annual meeting at 2 P.M. of the first day, and on subsequent days of the annual meeting they shall be in session from 9 A.M. to 12 noon, and from 2.30 P.M. to 6 P.M., until their respective programs are completed, or as the sections themselves may otherwise provide.

The House of Delegates shall hold its first session of each annual meeting at 2 P.M. of the first day, and on subsequent days at such time as may be necessary to complete its business; provided, that it shall not meet at hours that will conflict with the general session of the association.

The officers of each section shall be a chairman, a secretary and an executive committee. The latter shall consist of the last three retiring chairmen. At the commencement of the afternoon session of the third day of each annual meeting, each section shall elect its own officers to serve for the ensuing year, their duties to commence with the close of the annual meeting at which they are elected, and to continue until their successors are elected and qualify. Each section shall elect annually two representatives to the House of Delegates. In each section a nominating committee of three members shall be elected by open ballot on the first day to make nominations for section officers.

After the reading of the report DR. HARRIS of New York moved that the full report of the joint Committee on Reorganization, including the revised Constitution and By-Laws, be received and adopted. After considerable discussion the report was adopted by a large majority.

DR. MCCORMACK of Kentucky then moved to reconsider the vote by which the report was adopted, and that the motion to reconsider be laid upon the table. Carried.

On motion, the Constitution and By-Laws were ordered to be printed in separate form for pocket use, and a copy distributed to every member.

DR. JOHN A. WYETH of New York was introduced, and delivered the oration on Surgery.[1]

DR. F. H. WIGGIN of New York made a verbal report in behalf of the Committee on Senn Medal, saying that the committee had received two papers during the year, neither of which was sufficiently meritorious to warrant any award.

The next order was the report of the Committee on the Rush Monument Fund, which was read by DR. HENRY D. HOLTON, showing that $11,941.88 had been contributed towards this fund. On motion, the report was received and filed.

The report of the Committee on Scientific Research was read by the secretary in the absence of Dr. Wm. H. Welch, in which the hope was expressed that the grant of $500 appropriated by the association last year would be continued, and if possible an additional $500 added to it. The report was referred to the General Executive Committee and Board of Trustees, with instructions to report back to the association.

THIRD DAY.

The association met at 11 A.M.

DR. GEORGE M. GOULD of Philadelphia offered a resolution, in which the Board of Trustees was authorized to pay the bills of expenses incurred by the Committee on Reorganization.

The president announced as the Committee on National Legislation, Drs. H. L. E. Johnson, Wm. L. Rodman and Wm. H. Welch.

DR. BULKLEY read the report of the General Executive Committee, in which it was urged that the sections on physiology and dietetics and on pathology and bacteriology be merged into one section. On motion, the report was adopted.

DR. BULKLEY also read the report of the General Executive Committee of June 6th, which related to the recommendations contained in the president's address. It was recommended by the committee that the association appoint a committee to draft appropriate resolutions commemorative of the lives and distinguished services of the recently deceased presidents of the association; that action be taken to secure suitable portraits of deceased ex-presidents; that the incorporation of the association be confirmed; that a committee of three be appointed to revise the Code of Ethics, with instructions to report at the next annual meeting; that the association pass resolutions of disapproval of the action of Congress in failing to pass the bill which provided for the proper and adequate recognition of the medical corps of the U. S. Army.

In regard to the request from the Committee on Scientific Research, the General Executive Committee recommended to the association that the $500 appropriated for this committee last year and not expended be used by that committee this year in place of the further appropriation of $500.

A communication from DR. ARTHUR MACDONALD, as to the establishment of a psycho-physical laboratory in the Department of the Interior at Washington, was received by the committee and fully discussed, and it was recommended that the following resolution be adopted with reference to the same:

Resolved, That we are in favor of the establishment of a psycho-physical laboratory in the Department of the Interior at Washington, for the practical application of physiological psychology to sociological and abnormal pathological data, especially as found in institutions for the criminal, pauper and defective classes and in hospitals, and also as may be observed in schools and other institutions.

The committee recommended that an appropriation of $500 be made for the pathological exhibit for the coming year.

On motion, the report of the General Executive Committee, with its various items, was adopted, with the exception of that section pertaining to the appointment of a committee to revise the Code of Ethics.

DR. N. S. DAVIS, JR., of Chicago, then delivered the oration on Medicine.[2]

DR. TUCKERMAN of Ohio offered an amendment to the By-Laws as follows:

SECTION 3. Committee on Legislation: The Committee on Legislation shall consist of three members appointed by the president of the association for a term of three years. One member shall be a resident of Washington, D. C., one of Baltimore, and one of Philadelphia. It shall be the duty of the committee to represent before Congress the wishes of this association regarding any proposed legislation that in any respect bears upon the promotion and preservation of the public health, or upon the material or moral welfare of the medical profession. This committee shall also invite to a conference once a year, or oftener if need be, one delegate each from the Medical Service of the U. S. Army, the U. S. Navy, and the Marine Hospital service, one from the Bureau of Animal Industry, and one from each affiliated state or territorial medical society; such conference to meet in Washington to consider questions of medical and sanitary legislation, and to report back to this association and to the several state and territorial societies. (Referred to the House of Delegates.)

Hereafter, by action of the Board of Trustees, the railroad expenses of Dr. W. B. Atkinson will be defrayed to and from each future meeting of the association.

FOURTH DAY.

The association met at 11 A.M., with the president in the chair.

DR. GEORGE M. KOBER of Washington, D. C., delivered the oration on State Medicine. He selected for his subject

THE PROGRESS AND TENDENCY OF HYGIENE AND SANITARY SCIENCE IN THE NINETEENTH CENTURY.

He said that hygiene is a department of medicine whose object is the preservation and promotion of health, and deals, therefore, with all the factors likely to influence our physical welfare. It is not an independent science, but rather the application of the teachings of physiology, chemistry, physics, meteorology, pathology, sociology, epidemiology and bacteriology to the maintenance of the health and life of individuals and

[1] See Journal, June 6, 1901, p. 541.

[2] See Journal, June 13, 1901, p. 571.

communities. The subject is very properly divided into personal and public hygiene.

The speaker then referred to the pests and unsanitary conditions of the Middle Ages. He said the nineteenth century can boast of many advances in hygiene, particularly since the European invasion of cholera in 1830. The English towns which had been visited by this disease, and those fearing similar scourges, were willing to profit by their sad experience, and freely instituted sanitary reforms in the establishment of sewers, public water supplies, sanitary homes, etc.

He passed on to the consideration of the progress of sanitation in the United States, making reference to health boards, the effects of voluntary organization on sanitation, and a national board of health. He likewise referred to national and international quarantine. He spoke of the influence of sewers and public water supplies, the influence of improved water supplies, sewage disposal and river pollution, pure food and drug legislation, laws regulating the sale of drugs and poisons, patent and proprietary medicines, industrial hygiene, sanitary dwellings for wage earners, sanitation of prisons, hospitals, sanitaria and dispensaries, school hygiene, smallpox and compulsory vaccination, venereal diseases, the management and control of infectious diseases, etc. He gave a forecast of the result of the census work upon the mortality statistics, after which he concluded his oration in the following words:

"Without wishing to underrate the brilliant achievements in surgery of the brain, stomach, intestines, liver, gall bladder and other abdominal organs, and even wounds of the human heart which have been successfully sutured in four of the nine cases reported, what after all are the ultimate benefits compared with the results obtained by improved methods in sanitation?

"Since our knowledge of the nature of infectious diseases has been more and more defined, scientific methods for their prevention have been applied. We have learned, too, that in addition to the germ there must be a suitable soil for its proliferation, and that sanitation will not only destroy the environments for its development without the body, but also place the system in the best possible condition to resist its toxic action.

"The application of this knowledge has saved millions of lives, besides an incalculable amount of human suffering and distress, not to mention the economic aspect of the question. When we remember all this, and the fact that Jenner's discovery, at the close of the last century, of a fundamental and practical method of producing artificial immunity, has been far eclipsed in the last twenty years, and that we possess today not only curative, but also protective, sera for diphtheria, erysipelas, tetanus, plague, and possibly cholera, tuberculosis, typhoid fever, pneumonia, and a number of other immunizing agents for diseases of man and lower animals, we have reason to believe that the solution of the problem of immunity is only a question of time, and we may indeed expect great possibilities in our battle against infectious diseases.

"To the solution of this problem the labors of Salmon and Smith, Sternberg, Welch, Osler, Councilman, Reed and other Americans engaged in experimental medicine have contributed their full share. Progress has crowned our past; we will not retrograde. Let our conduct raise no blush on the cheek of posterity. Let us hand in hand, with heart and mind, join in promoting the welfare of American medicine, until she has reached the proudest pinnacle in the world of science, until she has become the fountain-head of knowledge for the benefit of mankind. Then, when at last we are called upon to pass through the portals beyond, Minerva Medica, in her sweeping robes of state, will proudly but reverently present us to the Supreme Healer of the universe as types of the true physician."

The General Executive Committee recommended to the association the adoption of the following resolutions from the Section on Pathology and Bacteriology:

Whereas, Mr. John D. Rockefeller of New York, appreciating the great importance and humanitarian utility of pure scientific medical research, has recently donated the sum of $200,000 for the promotion of original investigation, and has placed the control of this sum in the hands of a committee composed of representative medical scientists, under the able chairmanship of Prof. William H. Welch of Baltimore; be it

Resolved, That the medical profession, represented by the American Medical Association, desires to express its profound appreciation of this generous gift, and of the gratifying fact that the importance and needs of scientific research in medicine are so clearly realized by the donor; also its appreciation of the wise selection of the chairman of the committee having charge of the same; be it further

Resolved, That the secretary of the American Medical Association be instructed to transmit a copy of these resolutions to Mr. Rockefeller.

On motion, the report was adopted.

The report of the Judicial Council was read by Dr. F. H. Wiggin of New York, and contained two or three references to members of the association whose names have been dropped from the roll of members for noncompliance with the By-Laws.

Dr. H. L. E. Johnson made a report on behalf of the Committee on National Legislation, which was adopted.

The committee considered the following resolution, which was proposed at a previous session by Major Louis L. Seaman, U. S. V.:

Resolved, That this body deplores the action of Congress in abolishing the army post exchange or canteen, and in the interests of discipline, morality and sanitation, recommends its re-establishment at the earliest possible date.

The committee declared the resolution to be wise and proper, and of importance to every citizen of the Republic. The resolution is the outgrowth of careful study and observation by the Medical Department of the U. S. Army, is concurred in by the commanding officers at the several posts, and is intended to correct serious abuses under the present law which result in drunken-

ness, desertion, insubordination, dishonorable discharge, crime, poverty, appalling increase in venereal disease and invalidism among the soldiers of the U. S. Army.

It was recommended that the association adopt the above resolution, and that the Congress of the United States be petitioned to repeal at the earliest moment the objectionable law which prohibits the army post exchange.

On motion, the association concurred in the report of the Committee on National Legislation, and the above resolution was adopted.

The following officers were elected for the ensuing year: President, Dr. John A. Wyeth, New York; First Vice-President, Dr. Alonzo Garcelon, Maine; Second Vice-President, Dr. A. J. Stone, Minnesota; Third Vice-President, Dr. A. F. Jonas, Nebraska; Fourth Vice-President, Dr. James A. Dibrell, Arkansas; Treasurer, Dr. Henry P. Newman, Illinois; Secretary, Dr. George H. Simmons, Illinois; Librarian, Dr. George W. Webster, Illinois; Board of Trustees, term expiring 1904: Drs. W. W. Grant, Colorado; John F. Fulton, Minnesota; T. J. Happel, Tennessee. Judicial Council: Drs. George Cook, New Hampshire; H. H. Grant, Kentucky; John B. Murphy, Illinois; Philip Marvel, New Jersey; Louis H. Taylor, Pennsylvania; John L. Dawson, South Carolina; N. Fred Essig, Washington. To deliver oration on Surgery, Dr. Harry Sherman, California. To deliver oration on Medicine, Dr. Frank Billings, Illinois. To deliver oration on State Medicine, Dr. J. M. Emmert, Iowa.

Saratoga Springs, N. Y., was selected as the place for holding the next meeting of the association; chairman of Committee of Arrangements, Dr. George F. Comstock.

Before the close of the fourth general session over 1,800 members had registered. The sections were well attended, the papers were of a high scientific order, and the discussions pointed and animated. In a word, the fifty-second annual meeting of the association was one of the most successful in its history from every standpoint.

(To be continued.)

Recent Literature.

The Medical News Pocket Formulary. Containing 1,700 prescriptions representing the latest and most approved methods of administering remedial agents. By E. QUIN THORNTON, M.D., Demonstrator of Therapeutics, Pharmacy and Materia Medica in the Jefferson Medical College, Philadelphia. Third edition. Philadelphia and New York: Lea Bros. 1901.

We have had occasion to notice this book in its earlier editions. This third edition is similar in form and contents to those already published. It is attractively bound in leather, and in connection with each prescription after the usual directions as to administration, the indications for its use are given. Such books have a definite, if somewhat limited, field of usefulness.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JUNE 27, 1901.

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ATHLETIC TRAINING.

WE are again in the midst of the period of strenuous athletic life in the large colleges. Of all the contests which have now become fixtures of college life, probably none, not excepting football, are productive of so great a physical strain as the boat race about to be rowed at New London. It is, therefore, particularly fitting that we should at this time call attention to the work concluded in this number of the JOURNAL, done by Dr. E. A. Darling of Cambridge, W. O. Atwater and F. G. Benedict of Middletown, Conn., on the effects of training upon the physical conditions of the contestants.

In our issue of June 6th Darling gives the results of his investigations on the general subject of training, with particular reference to football and rowing. In the first place the fact is noted that examinations of value are made only under unusual difficulties; the men, as a rule, who are actively engaged in practice or games, are in such a state of excitement and impatience that they find it a hardship to submit to the time-taking tests which are often requisite. The paper before us is the second on the same general subject, the first having appeared in our issues of August 24 and 31, 1899, and concerns itself chiefly with the condition of the heart and kidneys. In a comparison of the effects of rowing and football, Darling finds they do not essentially differ; that in both sports the training appears to accustom the heart, kidneys and other organs to the unusual strain being put upon them in the course of the athletic season, and finally concludes that he was able to find no ill effects from the severe training nine months later.

At the instigation of the Harvard Athletic Committee through Dr. Darling, Atwater and Benedict undertook an elaborate investigation into the food and excreta of four members of the 1900 Harvard University crew during the days

immediately preceding the race. The writers of this paper call attention to the fact that such studies have hitherto not been frequently made, either in this or other countries. For the details of this exhaustive research we would refer the reader to the original papers appearing in our issues of June 20th and 27th. Like many difficult problems, however, which have as yet not been thoroughly investigated, the writers conclude their paper by urging the need of more work along the same lines. "Perhaps the most important conclusion to be derived from the experiments is that further and more detailed investigations are needed to show what diet is best for men under such severe muscular strain as that of oarsmen in training for races."

It is to this latter point that we desire particularly to refer. Valuable as the researches before us are, they are only beginnings; a very large number of examinations must be made before statistical conclusions of value may be reached. It is a peculiarly laborious piece of work on account of the conditions under which it must be undertaken, as indicated by Darling; but we are nevertheless convinced that until such studies are made, proving by accurate scientific means the danger or harmlessness of violent athletic contests, a large portion of the laity will maintain an attitude of scepticism regarding the supposed benefit to the individual contestant. We await the verdict of those capable of judging, and it is becoming clearer every year that conscientious clinical and laboratory investigation must be the final arbiter. It has long been apparent that training based on any other than physiological principles is capable of doing much harm both to the individual and to the general cause of athletic sports. We see in these studies, to which we have alluded, one of the first systematic attempts to place athletic training where it belongs,— in the hands of men qualified to determine what is actually taking place in the athlete's body, and not only what appears on the surface. A much neglected field of investigation, also, is a more detailed study of the nervous system than has hitherto been made. We are strongly inclined to think that the qualities which make the successful athlete more often lie in his mental make-up than is ordinarily supposed to be the case. This more subtle but highly important side of the general question will no doubt be considered when the last word on athletic training shall have been said.

A CENSUS OF TUBERCULOSIS.

It is said that an attempt is soon to be made in New York State to determine by as accurate a census as possible, the number of persons suffering from tuberculosis in that State. We shall await the result of the investigation with great interest, particularly since it is to be officially conducted by the State Board of Health. That such a census will be of much value as a standard by which the growth or decrease of the disease may be estimated, is self-evident; that it will be a most difficult undertaking to carry to a successful issue, is equally self-evident. Apart from the wilful tendency to deceive, which will certainly be a source of annoyance, there will undoubtedly be a large element of error among persons in whom the disease is in an incipient stage, and in whom, it may be, the diagnosis has never been made. There are many such persons in every community, who may never have consulted a physician, and of whose disease there is absolutely no official record. At best the matter is a delicate one, and one which will require much tact, as well as assiduity, to get at anything like all the facts. No doubt this has been taken into consideration, and men especially adapted for the work will be chosen. At any rate such an investigation should be productive of valuable results, however wide it may be of actual conditions. As the education of the masses goes on with regard to tuberculosis, a time will, no doubt, come when the difficulties of recording all cases will be very greatly diminished. In the meantime the undertaking of the New York Board of Health is a step in the right direction, provided it be carried out with tact and discretion. We hope that other states may see fit to follow this example, to the end that we may know how many living tuberculous persons there are, as well as how many die.

MEDICAL NOTES.

Officers of American Orthopedic Association.— The following officers of the American Orthopedic Association were elected at the last meeting held at Niagara Falls: President, H. Augustus Wilson, M.D., Philadelphia; First Vice-President, William J. Taylor, M.D., Philadelphia; Second Vice-President, G. G. Davis, M.D., Philadelphia; Secretary, John Ridlon, M.D., Chicago; Treasurer, E. G. Brackett, M.D., Boston. Philadelphia was chosen as the place for the next meeting in May, 1902.

A Bit of Journalistic Excess.— Among the news items in a recent number of one of our New York contemporaries appears the following statement under the heading "Proposed Slaughter of the Innocents": "A Denver despatch states that a prominent member of the Colorado State Medical Association introduced at the annual meeting of that society, held this

week, a proposed legislative enactment providing that, on the application of the parents, imbecile children be painlessly put to death. The proposed law is too wishy-washy. The children should be killed, whether the parents consent or not, and the latter also had better be put out of the way, lest they procreate other children of feeble intellect."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 26, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 21, measles 180, typhoid fever 7.

A CENTENARIAN. — Mrs. Mary Drew Peavey, who was one hundred and six years old May 16, died in South Boston, June 23. Mrs. Peavey was the oldest resident in the state, and had lived in three centuries. She leaves six children, more than a dozen grandchildren, forty great grandchildren, and also many descendants in the fifth generation.

SMALLPOX. — Two deaths from smallpox have occurred in Providence, R. I., since the appearance of the disease there. No more deaths are anticipated, and the disease is rapidly disappearing. Five cases of smallpox are said to have developed among the passengers of the Portuguese schooner "Zulamira," who are now under observation at Gallop's Island. No other cases are expected to develop. Cases are still appearing in various parts of the state, and about 100 cases have been reported since the middle of May.

NEW YORK.

LAXITY OF HEALTH DEPARTMENT IN BOROUGH OF QUEENS. — Dr. Obed L. Lusk, sanitary superintendent for the Borough of Queens, has been indicted by the Grand Jury of the county for alleged neglect of duty in connection with the case of John Charlton, who died of smallpox at Woodside, Long Island, on May 4th, and whose body lay unburied for fifty-two hours. The Grand Jury has also made a presentment regarding the spread of smallpox in the Astoria section of Long Island City and the lack of facilities for the handling of cases of infectious diseases. The presentment sets forth that "an alarming condition of affairs" exists in the administration of the Health Department in the Borough of Queens; stating that no dead wagon is locally attached to the sanitary bureau of the borough, and that there is no reception hospital for emergency cases.

MEDICAL SOCIETY OF THE STATE OF NEW YORK. — Dr. Henry L. Elsmer, president of the Medical Society of the State of New York, announces the appointment of his business committee for the ensuing year, consisting of Dr. Nathan Jacobson, chairman, 430 S. Salina Street, Syracuse; Dr. George Ryerson Fowler, 301 DeKalb Avenue, Brooklyn, and Dr. William C. Krauss, 371 Delaware Avenue, Buffalo. All letters and inquiries pertaining to papers and scientific communications for the semi-annual meeting to be held in New York City, Oct. 15 and 16, 1901, and the annual meeting to be held in Albany, January, 1902, should be addressed to the chairman.

INVESTIGATION OF WATER SHEDS. — At a conference held in the mayor's office on June 11th, at which Controller Coler and the chief engineers of the Finance and Water Supply Departments were present, it was decided to devote $100,000 to a preliminary investigation of water sheds, for the purpose of securing an increased supply, for which the city is to expend at least $30,000,000 during the next five years. At a meeting of the Board of Estimate and Apportionment, held June 13th, Commissioner Dalton of the Water Supply Department was authorized to acquire seventy acres of land in Forest Park, Long Island, on which to build a new distributing reservoir for the borough of Brooklyn.

BERIBERI ON A SCHOONER. — When the schooner "Alert," from Lagos, on the west coast of Africa, by way of St. Martin's, West Indies, arrived in port on June 19th, it was found that the captain was suffering from beriberi. During the voyage from Lagos to St. Martin's there were three other cases of the disease among the crew, and two of the patients died and were buried at sea. On arriving at St. Martin's the vessel was stocked with fresh water and provisions and shipped five new men; no cases developed thereafter.

SMALLPOX IN GOSHEN JAIL. — Six cases of smallpox (two of them of the confluent form) have recently developed in the jail at Goshen, N. Y. The patients were removed to the pest house at Orange Farm, and the remaining fifty-four prisoners quartered in the prison yard under a strong guard. The outbreak is believed to have originated from a prisoner who was a member of a gypsy camp.

REMOVAL OF STOMACH IN A DOG. — At the New York Veterinary Hospital an operation for complete removal of the stomach, for malignant disease, was recently performed on a fox terrier, which was a great pet in the family owning it. The animal is reported to have made an excellent recovery.

SMALLPOX AT YONKERS. — Up to two weeks ago there had been an occasional case of smallpox at Yonkers, on the Hudson, but since June 15th the disease has spread rapidly, and of late about five new cases have been reported each day.

Influenza among Horses.— Veterinary surgeons report that there is a severe outbreak of influenza among the horses of the city, and that about ten thousand animals were affected.

Miscellany.

HARVARD MEDICAL ALUMNI ASSOCIATION.

The annual meeting of the Harvard Medical Alumni Association was held at the Harvard Medical School, at 12 noon, on June 25th. There was no dinner this year, but simply an informal lunch immediately after the meeting, which was served in the medical school. The laboratories and museum were open for inspection, and the plans for new buildings were on exhibition.

The following changes in the constitution were adopted:

(1) The dinner in June shall become a triennial affair, being held in the year in which a new president of the association is chosen.

(2) Since it seems advisable to have some method whereby distant graduates may be kept informed of the sayings, writings and doings of our fellow alumni, and since the most practical plan that has yet been suggested seems to be to publish, once every three months, such items of news and notes pertaining to the medical school or graduates as may from time to time be available; to this end it would be well to appoint the president, assisted by the secretary, as a committee to collect such information and publish it. The council has already made this appointment.

It was voted that the office of "correspondent" be instituted, to the end of obtaining items of interest from various cities throughout the country, which should be published by the association.

Correspondence.

FURTHER OBSERVATIONS ON THE BROWN-TAIL MOTH.

Boston, June 24, 1901.

Mr. Editor: In the Boston Medical and Surgical Journal of June 13, 1901, there is a most interesting letter from Dr. James C. White, "Dermatitis Produced by a Caterpillar." In this letter he says there is a uniform history of the removal of caterpillars from the affected parts just preceding the eruption, and that as no such cases had previously occurred under his observation, he concludes that the larvæ must be some recently introduced species.

According to the entomologists, the brown-tail moth (euproctis chrysorrhœa) is not a recently introduced species, but has been seen in this country since 1892. The moth is of common occurrence in Europe, being found in all parts except the extreme north. During the latter part of May, 1897, these caterpillars occurred in large numbers in Somerville, in a large part of Cambridge and Everett, and part of Medford and Malden. In Somerville they occurred in especially large numbers, orchards being defoliated, the caterpillars swarming into houses, so that on Park street the washing down and sweeping out of caterpillars from the walls and piazzas of houses was of daily occurrence.

"The full-grown caterpillars are from an inch and a quarter to an inch and three-quarters in length. The head is pale brown mottled with dark brown, with reddish brown hairs scattered over the surface. The body is dark brown or black, with numerous fine, dull orange or gray spots scattered over the surface; long reddish brown, finely-barbed hairs arise from all the tubercles, and white branching hairs arise from the upper side of the lateral tubercles."[1] The hairs are very brittle and easily detached, and on coming in contact with the skin produce an intense irritation.

A number of these cases have come under my observation. The eruption is urticarial in character, appears on the face, back of neck, flexor surfaces of extremities and on the nates.

Dr. White speaks of the lesions as being arranged "in long continuous tracts, as if following the course of the creature over the skin." I cannot say that I have noticed this; the eruption can be produced by simply rubbing the hair of the caterpillar on the skin. Hairs become detached, remain on the hand; other parts of the body are rubbed by this hand, and in this manner the eruption is spread.

Truly yours,
Edith R. Meek, M.D.

JOHN W. PRAY PRIZE — A CORRECTION.

Concord, N. H., June 21, 1901.

Mr. Editor: On page 625 of your journal issued June 20, 1901, I note as follows: "The John W. Pray Prize, offered by the trustees of the New Hampshire State Hospital for original work on any branch of medicine, has been awarded to Dr. Albert E. Brownrigg for an essay on 'The Clinical Significance of the Cheyne-Stokes Symptom-Complex.'"

It is very kind of you to make mention of the fact that Dr. Brownrigg has been awarded the prize, but this prize was offered by the trustees of the New Hampshire Medical Society, and not by the trustees of the New Hampshire State Hospital. It is true that Dr. Brownrigg is at present an assistant physician at the New Hampshire State Hospital, but the New Hampshire State Hospital is not offering prizes for original work in any branch of medicine.

Allow me to say that Dr. Pray left $1,000 to the New Hampshire Medical Society, the income of which was to be devoted to offering a prize for original work in medicine, whether in the State or anywhere else. While the income upon $1,000 at the present rates is not $100 a year, yet so many years have occurred in which no paper was offered considered to be worthy of the prize, that we have in the treasury sufficient, so that for the ensuing year the trustees offer a prize of $100 for a paper in original work in any branch of medicine.

Believing that you wish to make a correct statement in any such matter, I am

Very truly yours,
G. P. Conn, M.D., *Secretary*.

LONDON CONGRESS ON TUBERCULOSIS.

Baltimore, Md., June 19, 1901.

Mr. Editor: I should like, through your journal, to call the attention of members of the profession to the important Congress on Tuberculosis, which will be held in London from July 23d to 26th. It is much to be desired that a large contingent from the United States should participate in the work. Many prominent physicians have signified their intention of joining the congress. Members of the profession wishing to do so should send their names, enclosing $5.00, to Dr. St. Clair Thomson, 20 Hanover Square, W., London.

Sincerely yours,
W. Osler, M.D.

[1] Special Bulletin, The Brown-Tail Moth, Massachusetts Agricultural College.

METEOROLOGICAL RECORD

For the week ending June 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. ..9	29.87	58	66	50	57	56	56	W	W	16	5	F.	O.	T.
M..10	30.02	64	75	53	56	43	50	N W	W	18	12	C.	C.	
T..11	3.12	68	80	57	60	41	50	N W	S W	8	11	F.	C.	
W.12	30.10	70	79	62	60	63	62	W	E	5	4	C.	C.	
T..13	30.22	67	74	60	59	48	54	N E	S	6	12	C.	C.	
F ..14	29.96	70	80	60	78	83	80	S W	S W	14	13	C.	C.	
S...15	30.14	62	73	51	88	81	84	N E	E	20	3	O.	O.	
☞	30.06		75	56			62							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 15, 1901.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York . .	3,437,202	1,158	362	26.85	8.55	3.45	4.50	3.37
Chicago . .	1,698,575	—	—	—	—	—	—	—
Philadelphia.	1,293,697	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	168	54	23.80	7.14	—	4.76	2.97
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,387	—	—	—	—	—	—	—
Cincinnati .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	—	—	—	—	—	—	—
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee .	285,315	—	—	—	—	—	—	—
Providence .	175,597	42	20	23.81	11.90	—	7.14	7.14
Boston . . .	560,892	171	44	30.40	12.86	2.92	2.92	3.50
Worcester. .	118,421	29	5	27.60	3.45	—	3.45	—
Fall River. .	104,863	26	8	3.85	26.92	—	3.85	—
Lowell . . .	94,969	33	8	18.00	9.00	—	6.00	9.00
Cambridge .	91,886	20	4	30.00	10.00	—	5.00	10.00
Lynn. . . .	68,513	15	3	26.66	6.66	6.66	—	6.66
Lawrence . .	62,559	8	2	12.50	12.50	—	—	—
New Bedford.	62,442	26	8	38.46	3.85	—	3.85	—
Springfield .	62,059	12	1	—	—	—	—	—
Somerville .	61,643	—	—	—	—	—	—	—
Holyoke . .	45,712	3	—	—	—	—	—	—
Brockton . .	40,063	3	2	33.33	—	—	—	—
Haverhill . .	37,175	7	2	57.12	—	—	—	14.28
Salem . . .	35,956	7	2	14.28	—	—	—	—
Chelsea. . .	34,072	11	4	18.18	—	9.09	—	—
Malden . . .	33,664	7	2	14.28	14.28	—	—	—
Newton. . .	33,587	6	1	33.33	—	—	—	16.67
Fitchburg. .	31,531	4	1	—	25.00	—	—	—
Taunton . .	31,036	4	—	25.00	—	—	—	—
Gloucester .	26,121	7	—	—	—	—	—	—
Everett . . .	24,336	8	3	12.50	12.50	—	—	—
North Adams .	24,200	4	2	25.00	—	—	—	—
Quincy . . .	23,899	4	2	25.00	—	—	—	—
Waltham . .	23,481	5	2	20.00	—	—	20.00	—
Pittsfield . .	21,766	3	—	—	—	—	—	—
Brookline. .	19,935	—	—	—	—	—	—	—
Chicopee . .	19,167	6	1	—	16.67	—	—	—
Medford . .	18,244	4	2	75.00	—	—	—	—
Newburyport .	14,478	4	1	—	25.00	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 1,824, under five years of age 549; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 472, acute lung diseases 160, consumption 225, scarlet fever 47, erysipelas 5, typhoid fever 16, whooping cough 6, measles 13, cerebro-spinal meningitis 7, smallpox 16.

From whooping cough, New York 3, Boston 2, Quincy 1. From cerebro-spinal meningitis, New York 4, Boston, Worcester and Brockton 1 each. From scarlet fever, New York 40, Boston 5, Lynn and Chelsea 1 each. From typhoid fever, New York 8, Baltimore 2, Boston 3, Worcester, Lowell and New Bedford 1 each. From erysipelas, New York 3, Boston 1, Salem 1. From smallpox, New York 11, Worcester 2, New Bedford 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending June 1st the death rate was 16.3. Deaths reported 3,580: acute diseases of the respiratory organs (London) 240, whooping cough 83, diphtheria 44, measles 118, fever 29, scarlet fever 46.

The death rate ranged from 9.3 in Brighton to 22.6 in Preston; Birkenhead 15.9, Birmingham 17.9, Blackburn 19.2, Bolton 17.3, Bradford 16.8, Bristol 12.6, Burnley 17.7, Cardiff 16.7, Croyden 10.8, Derby 17.2, Gateshead 19.3, Halifax 11.9, Huddersfield 18.7, Hull 22.5, Leeds 14.3, Leicester 13.0, Liverpool 19.5, London 15.4, Manchester 19.0, Newcastle-on-Tyne 19.1, Norwich 11.6, Nottingham 17.4, Oldham 20.9, Plymouth 13.5, Portsmouth 12.6, Salford 15.3, Sheffield 18.1, Sunderland 19.8, Swansea 14.9, West Ham 14.4, Wolverhampton 16.6.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JUNE 13, 1901.

WHITE, J. H., surgeon. To report at Washington, D. C., for conference. June 7, 1901.

WILLIAMS, L. L., surgeon. Granted leave of absence for three days from June 6. June 6, 1901. Granted two days extension of leave of absence. June 8, 1901.

PETTUS, W. J., surgeon. Granted leave of absence for three days from June 13, 1901. June 11, 1901.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for 30 days from June 8, 1901. June 8, 1901.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for thirty days from May 30. May 31, 1901.

WICKES, H. W., passed assistant surgeon. Granted leave of absence for four days from June 3. May 31, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days, on account of sickness. June 6, 1901.

KING, W. W., assistant surgeon. Granted leave of absence for four days. June 11, 1901.

BREADY, J. E., acting assistant surgeon. Granted leave of absence for one day, June 19. June 11, 1901.

ECROYD, HENRY, acting assistant surgeon. Granted leave of absence for ten days from June 8. June 6, 1901.

MASON, W. C., acting assistant surgeon. Granted leave of absence for six days from June 23. June 10, 1901.

SMYTH, F. R., acting assistant surgeon. Granted leave of absence for three days. By Bureau telegram of May 31, 1901, revoked. June 10, 1901.

STANTON, J. G., acting assistant surgeon. Granted leave of absence for fifteen days from June 3. June 6, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., on June 7, 1901, for the physical examination of an applicant for cadetship in the U. S. Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon H. D. Geddings, Chairman; Assistant Surgeon B. S. Warren, Recorder.

RECENT DEATH.

ARTHUR JAMES DRESSER, M.D., M.M.S.S., died in Tewksbury, June 12, 1901, aged twenty-eight years.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-first Annual Bulletin of the Denver College of Medicine, Medical Department of the University of Denver. Session 1901–1902.

Principes du Diagnostic Gynécologique par le Docteur G. Fraisse. Livre I. Félix Alcan. Paris. 1901.

Transactions of the American Association of Obstetricians and Gynocologists. Vol. XIII. For the year 1900. Illustrated. Philadelphia: Wm. J. Dorman. 1901.

Surgical Experiences in South Africa, 1898–1900, being mainly a clinical study of the nature and effects of injuries produced by bullets of small calibre. By George Henry Makins, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Société Française D'Otologie et de Laryngologie. Reprint. Illustrated. 1901.

Operative Surgery. By Joseph D. Bryant, M.D. Vol II. Illustrated. New York: D. Appleton & Co. 1901.